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To All IDRA Members

A Special Announcement

This issue (Volume Number 45, Number 1) will soon be a collector's item. It is the first issue in the 45th year of Journal history . . . and it is, from all indications, the last issue ever. Those of us involved in the production of this magazine see no alternative but to shut down now. The publication of this issue was possible only because of a major gift. There are simply no funds for future issues.

Those few of you who recently renewed your subscription in response to our appeal will be entitled to a refund. It may or may not be a full refund for it can only be paid after all other IDRA obligations are settled. You do not need to apply, but please do not expect a check before the end of February. No other refunds are anticipated at this time.

The phone and fax numbers at IDRA headquarters will no longer be in service. Please address all correspondence to the IDRA at PO Box 2550, Goldenrod, FL 32733. We will try to respond in a reasonable time, but please be patient.

There are no sad songs sufficient to the occasion. When newspapers shut down, the staff retires to the local bar in order to mourn in proper fashion. Since we who contributed time and talent to this fine journal are scattered all over the world, we must mourn alone. It won't be easy.

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Low Power RTTY Contesting

by Don Hill, AA5AU
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The most popular type of contesting in RTTY today is in the Low Power class of certain contests (less than 150 watts output power). The contests that sponsor Low Power classes are: ARRL RTTY Roundup (1st Low Power RTTY contest ever in January 1989), WPX RTTY (started 1995), CQWW RTTY (Low Power started 1993), and the TARA Sprint. Low Power logs in these contests out-number High Power by more than 3 to 1. Results also show that there is more activity in the contests that offer the Low Power class. The NAQP RTTY contest in July is an ALL Low Power affair in North America.

The majority of Low Power contesters are the guys and gals that are just out to make a few (or few hundred) contacts, work a few new states or countries, and generally just have a little fun. But the biggest lure of a Low Power class is that it gives many of us a chance at winning some wall paper when we cannot compete with the Mega-Stations. Most of us do not have the antennas or amplifiers to otherwise "compete", so Low Power is a better avenue for us to have fun.

Low Power contesting is so unique from High Power contesting that an entirely different approach and technique is required. The Low Power operator must be very efficient in the "hunt and pounce" mode when cramped bands limit their chance at holding a frequency. They must also realize when it is time to move on when they can't break a pileup on a multiplier. There may be an easier one right next door. You can always go back to the other multiplier when the pile dies down a bit, especially on those that show up late in the contest. Unless you have a superior antenna array or excellent propagation you are not going to break a pileup against Big Guns in most cases.

But that doesn't mean you have to run away when the going gets tough. Timing has a lot to do with who gets through on RTTY. When you know there are several calling, giving your call one single time in a clear moment can get you through, even against the Big Boys. Don't give up easily, but know when it is time to look elsewhere.

This is also true when trying to "hold" a frequency. One must know when it is time to move. A good Low Power operator should not try to "compete" against the High Power station because they are NOT competing against High Power stations in the results. An important part of Low Power contesting is realizing your limitations and working on your strengths.

As with High Power contesting, when running Low Power and you get a "run" going, you know to stick with it. All of the Low Power contests can be considered "rate" contests. If you can find a little nook in the band, and the conditions are favorable, you can run rate using Low Power. It is possible. One of the biggest satisfactions for the Low Power operator is to make a "run" for an hour or more with contacts one after another.

Antenna systems play a major role in any contesting. The stations with the beams are going to beat the stations with the wires and verticals. I proved that point to myself years ago when I did so well with wires and verticals. Then all of a sudden I wasn't able to compete when RTTY contesting started to get more popular. I put up a beam and I was back in business. But as the sport got even more popular, I found myself having to keep improving my antenna system on all five contest bands. I feel the antenna system is the 2nd most important part of a contester's station, the foremost feature being the operator. The receiver in your shack in probably next important and narrow filters are a big advantage in that department. Afterwards we start getting into DSP audio filters, DSP TNC's, etc, etc.

The components of a contester's station resemble a team in that the operator, radio, computer, TNC, software, amplifier, filtering, and antenna system all work together in a team effort. How well they work together determines how well one does against the competition. If your team works better than someone else's, you will more than likely achieve a higher score. Some of us prefer to compete against ourselves to see if we can improve on how we did the last time. In actuality, that should occur each time out.

The 2 Radio Operation

There has been heated debate recently over the use of multiple radios for single operator RTTY contest stations. The use of more than one radio has been widely used by CW and SSB contesters for many years. And multiple radio operation has now become standard for those that reside atop the results of the RTTY contests. If your goal is to WIN a RTTY contest, it is almost certain that you must run at least two radios.

I can't remember when I started two-radio contesting. It changed the way I RTTY contest forever. Now I run two radios in every major contest effort. As long as you have only one transmit signal on the air at a given time, using more than one radio is well within the Single Op rules in all RTTY contests.

Running two radios is a crazy adventure. I must admit I probably look pretty funny with two set's of headphones hanging off my head. Listening to different RTTY signals in each ear takes a few contests to get used to. Since you only have one set of eyes, you can't see the two radios, two TNC's and computer screens at the same. This makes tuning RTTY signals by ear advantageous. By the time you get a chance to look at the "other" screen, the signal you've tuned in will have printed out so you can react to it.

I favor running two completely independent stations with the radios side by side in the middle of the operating position and the computers to the outside. The antennas are switchable to be available to each station. Eddie, W6/G0AZT, with whom I've operated several times in Multi-Op, prefers the have the computers in the middle. So you must experiment with what works for you. I made my two stations nearly identical with an Icom IC-751A, PK232MBX, NIR audio filter, and a computer running windows. This way I don't get too confused when trying to operate them at the same time, all the controls are the same.

The biggest problem running two stations is RFI from one into the other especially if your antennas are close together, which is a problem I have. By using a set of RF line filters for each band I have greatly reduced my RFI problems and

completely eliminated some. Running Low Power greatly reduces RFI between stations but not in all cases.

Because of what has become known as phase noise, there may be times when a solid state transmitter running full output power (typically 100 watts) will cause RFI into a nearby radio connected to a different antenna on another band. Yet, by lowering the output of the transceiver and running an external linear amplifier at the same 100 watts, you will have eliminated the RFI. Not being an expert on phase noise, I cannot tell you why this happens. But there was a time when it made a big difference to four operators down on Aruba.

While running initial RFI tests barefoot with 100 watts output on the rate and multiplier stations before the '92 P40RY CQWW/DJ RTTY Contest effort, RFI was bad into both stations. The operators were greatly discouraged that this might only become a single radio operation. At zero hour, we lowered the power on the radios and turned on the amplifiers. Even though we were running between 300 and 500 watts output maybe more, the RFI completely disappeared on most band combinations. The rest is history.

Running an Amp in Low Power Contesting

The debate over the use of two radios is nothing compared to that of whether or not Low Power stations should use external linear amplifiers. Again, the rules clearly state a requirement. They say that Low Power is less than 150 watts output power, period. Running an external power amplifier at say 140 watts is the same as if you had 140 watts out of your transceiver.

It makes better sense for Low Power contesters to use an external amplifier. I use one on each station nearly all the time. Why put a strain on the finals in your exciter when you can loaf both exciter and linear amplifier for the entire contest. My 20 year old Heathkit SB-200 will give me 350 watts out on RTTY, but the tubes won't last long. Yet, the tubes seem to last forever running less than 150 watts.

Final

RTTY contesting, especially for Low Power operators, continues to be on the rise. In most cases in Low Power contests, you are competing against stations in your same state or call district or DX country. This seems to make it fair for everyone. The wall paper is nice to get, but the thrill of actually being in the contest and practicing our skills is what keeps most of us coming back. And we are coming back in big numbers.

With the Internet and other distractions, it is hard to foresee the future of Amateur Radio as we know it. Everything is changing so fast. I could go out of a limb and say that in this upcoming sunspot peak that we will experience RTTY contesting at it's highest point of achievement and that after this cycle it will taper off into near oblivion. Then again, I don't like climbing trees except to hang antennas, I hope I haven't hung myself as well.

No matter what the future holds for our general interest of Amateur Radio, we know one thing. We will be doing some serious RTTY contesting in the next 10 years.

Low Power contesting in the most fun I have ever had in Amateur radio.

AA5AU contest history. All contest efforts are Single-Op, All Band, unless otherwise noted.

ARRL Roundup:
1989 - 1st Place US/VE Low Power (1st World Low Power)
1990 - 3rd Place US/VE Low Power
1991 - 2nd Place US/VE Low Power
1992 - 2nd Place US/VE Low Power
1993 - 1st Place US/VE Low Power
1994 - 3rd Place DX Low Power as C6A/AA5AU
1995 - 1st Place US/VE Low Power (1st World Low Power)
1996 - 1st Place US/VE Low Power (1st World Low Power)

IDRA WPX:
1995 - 1st Place World Low Power
1996 - 1st Place World Low Power

BARTG:
1988 - 2nd Place W5 Call Area (18th World)
1989 - 1st Place W5 Call Area (7th World)
1992 - 1st Place W5 Call Area

VOLTA:
1992 - 7th Place World

ANARTS:
1992 - 2nd Place World
1996 - 2nd Place World Multi-Op (with G0AZT)

SARTG:
1987 - 4th Place North America (19th World)
1988 - 2nd Place North America (5th World)
1992 - 1st Place North America Multi-Op w/G0AZT (3rd World)
1993 - 1st Place W5 Call Area Multi-Op w/Packetcluster
1995 - 2nd Place North America (4th World)

CQWW (Before Low Power added):
1987 - Duck Hunting
1988 - 2nd Place W5 Call Area (5th USA)
1989 - 1st Place W5 Call Area 28 Mhz (3rd USA 28 Mhz)
1990 - 1st Place W5 Call Area (9th USA)
1991 - 1st Place North America Multi-Single with Eddie as V2/G0AZT (2nd World)
1992 - 1st Place World Multi-Single with the P40RY team (current World Record)

CQWW (After Low Power added):
1993 - 3rd Place USA Low Power
1994 - 1st Place USA Low Power (5th World Low Power)
1995 - 1st Place NA Multi-Single Low Power (with G0AZT)

JARTS:
1992 - 2nd Place World
1995 - 1st Place NA (4th Place World)

WAE:
1986 - 1st Place Non-Europe All Band (as WB9IVC/5)
1987 - 5th Place USA High Band
1988 - 1st Place Non-Europe All Band
1989 - 1st Place Non-Europe All Band
1990 - 3rd Place USA (they dropped the High Band category)
1991 - 1st Place North America

TARA Sprint:
1994 - 1st Place Low Power
1995 - 2nd Place Low Power

73 and CU in the next Low Power contest! de Don AA5AU

Results of the 26th

SARTG World Wide RTTY Contest 1996

Compiled by SARTG Contest Mgr., Bo Ohlsson SM4CMG. Skulsta 1258, S-710 41 FELLINGSBRO, Sweden. 25-Oct-96

Single Op - All Bands

Nr	Call	Final Score	QSOs	Points	Multiplier/Band (MHz) 3.5	7	14	21	28
1	9H0A [1]	1589180	779	8780	25	25	67	41	23
2	EO6F [2]	1363980	683	7620	27	39	74	25	14
3	SM3KOR	1311175	659	7325	24	42	69	31	13
4	LZ1MC	1198560	597	6810	24	45	65	26	16
5	YL2KF	1191520	624	6770	26	39	69	30	12
6	UR7E [3]	1112730	570	6395	23	46	77	22	6
7	DJ5JK	1111110	529	6105	29	33	76	33	11
8	SM5FUG	1059520	563	6160	27	33	69	27	16
9	OH2BP	1051350	582	6450	19	29	72	24	19
10	A85KD	1044140	663	7055	16	30	76	15	11
11	UN5PR	861120	415	5980	22	38	67	14	3
12	OH2GI	850680	501	5560	21	29	63	25	15
13	DL7VOG	825390	478	5095	25	39	61	23	14
14	I1CO8	812430	481	5310	25	33	58	30	7
15	IT9STX	774200	525	5530	20	29	56	29	6
16	NO2T	756855	461	5445	17	41	67	11	3
17	PA3ERC	726440	434	5080	17	36	61	22	7
18	N2DL	706050	415	5230	11	34	68	19	3
19	N1RCT	693750	482	5550	19	28	59	19	
20	IV3FSG	651780	425	4590	22	31	67	17	5
21	G5LP	649440	429	4510	27	30	54	22	11
22	SV18DO/7	627210	419	4545	16	38	56	25	3
23	IK2HKT	612765	393	4005	31	38	56	22	6
24	DL4MCF	600750	385	4005	24	35	59	24	8
25	OH2LU	579150	411	4455	19	22	54	22	13
26	SM3BJV	576520	375	4060	19	21	57	34	11
27	DL2FAG	550800	351	3825	25	35	50	25	9
28	KQ4GC	547995	409	4605	9	25	61	17	7
29	YZ7ED	521550	371	4275	18	16	63	18	7
30	NF6L	520840	414	4490	19	27	59	9	1
31	IK7APK [4]	478020	366	3855	7	23	57	27	10
32	LA7AJ	471805	335	3715	21	15	57	21	13
33	K4GMH	424050	347	3855	16	29	48	15	
34	WA4VQD	420750	353	3825	14	20	52	21	3
35	G6G [5]	387940	314	3260	19	30	44	17	9
36	OK2SG	369000	279	3000	24	23	55	15	6
37	WA6VZI	355000	321	3550	15	27	54	4	
38	I2HWI	310050	277	2925	22	22	41	18	3
39	SM4GVR	291575	260	2725	14	26	53	14	
40	SM0TGG	284715	249	2565	17	24	43	20	7
41	PA3DHR	270320	240	2480	22	22	39	20	6
42	OK2EQ	266965	241	2495	22	27	38	18	2
43	SM4RGD	261740	285	2845	25	36		24	7
44	GW4KHQ	259875	245	2625	19	27	38	13	2
45	HA2VB	253825	308	3575		7	43	21	
46	ON7AM	252865	230	2455	20	29	34	15	5
47	IK4BWC	247000	259	2600	18	23	36	13	5
48	WA0ACI	229900	292	3025	15	21	33	7	
49	IK0CHU	224020	240	2435		24	42	16	10
50	N6GG	215275	250	2725	8	19	47	5	
51	DL6YEW	211970	210	2255	18	25	44	5	2
52	YT0E [6]	211500	217	2250	24	22	32	14	2
53	DL7DUL	210210	223	2310		30	45	10	6
54	I2KFW	209300	232	2275	12	28	38	10	4
55	KD2YG	196800	190	2400	3	20	51	8	
56	IN3XUG	192010	204	2110	3	20	47	16	5
57	SM5EIT	191350	207	2150	5	19	43	16	6
58	KE7GH	178640	314	3190		19	37		
59	SM68SK	171360	172	1785	8	25	33	24	6
60	SM0DJZ	163625	189	1925	7	16	37	16	9
60	SP2FAV	163625	189	1925	13	21	29	15	7
62	N9CKC	162640	186	2140	4	15	40	11	6
63	KI4MI	160000	179	2000	12	25	35	8	
64	NA2M	155520	202	2160		20	40	12	
65	KA2CYN	155420	177	2045	5	21	33	11	6
66	IK3ASM	155100	165	1650	13	22	36	14	9
67	IT9/IK2RXU	154560	192	1840		16	42	20	6
68	KD8FS	152130	217	2305	4	14	37	7	4
69	SP2EIW	146940	183	1860	19	18	27	15	
70	SP9LKS	144540	190	1980	7	16	33	17	
71	GW5NF	144000	166	1800	25	21	30	4	
72	SP2UUU	131750	155	1550	14	18	28	20	5
73	PA3GKT	130350	159	1650	8	25	39	5	2
74	G3YJQ	129240	164	1795		19	38	14	1
75	HB9DBK	120990	149	1635	12	16	36	7	3
76	SP3RBP	115705	156	1585	9	22	23	14	5
77	AA9RR	111825	163	1775	10	13	27	10	3
78	YU2AE	102720	156	1605	16	15	24	9	
79	GM3UTQ	96480	141	1440	14	15	24	9	5
80	OZ5MJ	94400	141	1600			37	14	8
81	YU7AM	86925	134	1525		7	40	10	
82	OK2PAD	86140	143	1460	23		36		
83	DL8SDC	83300	120	1225	4	5	36	16	7
84	ZL2AMI	81090	109	1530		29	24		
85	KD6TO	80600	196	2015		15	25		
86	K8UNP	76950	123	1425			38	16	
87	NI4H	75060	106	1390			41	9	4
88	AH6JF	70005	121	1795		10	29		
89	DL2UFN	69540	110	1140	3	11	26	14	7
90	I2BZN	64500	106	1075	7	11	29	13	
91	W7RSJ	62525	151	1525	4	9	26	2	
92	IK0CNA	56680	108	1090		13	22	13	4
93	N2CQ	56240	115	1480		4	34		
94	DF5BX	55440	97	990	9	15	20	10	2
95	W2JGR/0	52080	107	1085		19	19	10	
96	H89AWS	51675	95	975	18	22	13		
97	KF8TM	48000	76	1000	8	6	23	7	4
98	DJ2YE	45360	80	840	8	15	27	4	
99	JA28Y	42845	79	1045		5	36		
100	SP8FHJ	42065	87	895	10	10	18	9	
101	SP48OS	40500	90	900	11	10	13	10	1
102	DL1JPL	40205	87	935			27	11	5

SARTG WW RTTY Contest 1996, Results *(cont'd)*

103.W4IF	39200	77	980		10	28	2	
104 UK7F [7]	39155	72	955	2	7	29	5	
105 LA1ZIA	38955	79	795		4	29	10	6
106 HA5DU	38925	85	865	8	4	23	10	
107 WA0WHT	38850	94	1050			28	9	
108 AA7CP	35000	102	1000	1	15	18		
109 K7DSR	32680	84	860		14	24		
110 ZL2JON	31005	56	795	2	13	24		
111 IK4ZHH	31000	78	775		2	21	9	8
112 KB9KWL	30060	80	835	7	13	16		
113 IK2YSE	29670	74	690			21	16	6
114 SM6BUV	29600	71	740			29	10	1
115 IK2AUK	26910	60	585	5	7	24	11	
116 K6HGF	26825	69	725		12	25		
117 K9RRB/3	23120	62	680		6	17	8	3
118 K4FPF	22785	57	735		2	26	3	
119 JA1SJV	21000	47	600		8	27		
120 W1HFN	20550	55	685		5	25		
121 HK3SGP	20540	55	790			22	4	
122 OZ7XE	18270	61	630		3	26		
123 LZ4BU	9625	37	385		4	16	4	1
124 DK7FP	7475	32	325		6	11	6	
125 N1AFC	7315	32	385		4	15		
126 OH0/DL6LAU	5700	38	380			10	5	
127 OI3LQK	5510	29	290		8	11		
128 EA1BLF	1300	12	130			9	1	
128 EA1DLN	1300	12	130			9	1	
130 YU4WU	720	8	90			5	2	1
131 SP2ZCD [8]	100	4	25			1	2	1

3,5 MHz

1 IK2HKT	22475	75	725	31	
2 UN5PR	14850	46	675	22	
3 SP2FN	12825	69	675	19	
4 N1RCT	9975	48	525	19	

7 MHz

1 W2UP	108805	192	2315		47
2 PJ2MI	88440	137	2010		44
3 YL2KF	48360	115	1240		39
4 PA3EWP	47730	122	1290		37
5 KF4BU	41700	143	1390		30
6 LA2IJ	15775	68	685		23
7 KI4MI	13000	45	520		25
8 IN3XUG	9800	51	490		20
9 HB9AWS	8580	38	390		22
10 JA2NNF	1375	10	125		11

14 MHz

1 I4FTU	524050	457	5575		94
2 YU1NR	435960	417	5190		84
3 AB5KD	330980	384	4355		76
4 WF1B	280840	333	4130		68
5 DJ5JK	266760	278	3510		76
6 JA7YAA [9]	262080	256	3640		72
7 US9QA	194250	250	2775		70
8 PA3ERC	189100	247	3100		61
9 I2UIY	154500	217	2575		60
10 I2WEG	128640	194	2010		64
11 SM3BJV	125970	189	2210		57
12 OH2LU	125550	198	2325		54
13 SM3BYJ	117420	179	2060		57
14 IK2DPP	112750	191	2050		55
15 WA4JQS	110415	190	2165		51
16 IK2OPW	106455	201	2265		47
17 SM4DHF	104490	174	1935		54
18 DL4MCF	101775	151	1725		59
19 OK2BXW	93330	161	1830		51
20 DL2FAG	92000	152	1840		50
21 JH7QXJ	86390	124	1630		53
22 SM5AAY	84870	168	1845		46
23 4X6UO	84000	134	2000		42
24 CE8SFG	83490	127	1815		46
25 LZ2MP	78525	165	1745		45
26 PA3BBP	68080	130	1480		46
27 IK2BUF	65320	119	1420		46
28 JL6HKJ	51800	90	1295		40
29 N2CQ	48960	112	1440		34
30 DL9MBZ	47970	108	1170		41
31 K8UNP	44270	99	1165		38
32 ER5AA	43870	102	1070		41
33 KB2SIX	35520	93	1110		32
34 7L4IOU	34410	66	930		37
35 IT9IAS	33300	99	925		36
36 YW1A [10]	31330	82	1205		26
37 IK0/SM5DQE	29070	87	855		34
38 OM3PR	28800	87	900		32
39 DL2AL	23560	72	760		31
40 K8PYD	21315	50	735		29
41 SV1CER	14490	63	630		23
42 OZ9AG	12555	41	465		27
43 W6IWO	12075	56	575		21
44 7M3IYZ	11750	36	470		25
45 K8CV	11400	51	600		19
46 3Z6AEF	8800	36	400		22
47 UR4FWI	7700	33	350		22
48 KB9KWL	7200	41	450		16
49 JH8UQJ	5890	31	310		19
50 SM5LNS	5600	34	350		16
51 G3YPN	3900	36	325		12
51 K9UQN	3900	33	325		12
53 VE5SF	3850	24	275		14
54 SM6OLL	2210	16	185		12
55 SM7BUN	2030	12	145		14
56 OY4TN	1260	14	140		9
57 JE1UFF	1155	9	105		11

21 MHz

1 SM4RGD	20760	89	865	24
2 PT2BW	18980	49	730	26
3 DL7VOG	13800	61	600	23
4 WA4VQD	10920	54	520	21

SARTG WW RTTY Contest 1996, Results *(cont'd)*

5	DF5BX	1900	19	190	10

28 MHz

1	DL1JPL	250	5	50	5

Single Ops: [1]9H1EL, [2]UX0FF, [3]UR5EDU, [4]IK0HBN, [5]G0UJI, [6]YU1BO, [7]UK8FF, [8]SP0289GD, [9]JG7PSJ, [10]YV1AVO.

Nr	Call	Final Score	QSOs	Points	Multiplier/Band (MHz) 3.5	7	14	21	28

Multi Op - Single TX - All Bands

1	RK9CWA	2231300	730	10525	39	55	85	31	2
2	IK2UCK	1004960	513	5710	29	40	71	25	11
3	PI4CC	823935	489	5605	21	24	75	21	6
4	AA5AU	775520	462	5240	18	37	61	22	10
5	RW6AWT	753480	493	5460	21	39	66	12	
6	AF4Z	365690	337	3770	4	25	45	17	6
7	VE6KRR	311025	329	3575	10	20	48	9	
8	T91EZC	245195	256	2755	18	19	51	1	
9	VE3FJB	244900	262	3100	8	13	51	7	
10	VK6GOM	187910	152	2185	2	22	43	19	
11	PA3AQL	170940	205	2035	17	21	33	7	6
12	JK3ZQJ	4440	26	370			12		

Operators of the Multi-Op stations

RK9CWA:	UA9CGA, RW9CF.
IK2UCK:	IK2UCK, I2GXS.
PI4CC:	PA0VHA, PB0AIU, PA3ELV, PA3BSQ.
AA5AU:	AA5AU, YL - DJ Williams.
RW6AWT:	RN6BN, UA6NP, RN6MM.
AF4Z:	AF4Z, AA4FC, KT4DI, AD4TG, KC4HW, W3ZNB.
VE6KRR:	VE6KRR, VE6RAJ, VE6JDP.
T91EZC:	T95MOV, T95MXH, T94KM, T94KW.
VE3FJB:	VE3FJ8, VA3CW, VE3IJM,VE3VSM.
VK6GOM:	VK6GOM, VK6APW.
PA3EQL:	PA3AQL, PA3GQF, PD0RSF.
JK3ZQJ:	JG1EIQ, Satoru (SWL), Ryo (SWL).

SWL Op - All Bands

1	ONL 383	348460	299	2660	19	27	50	27	8
2	F-10370	225750	205	2625	17	25	44		
3	SM4CMG	31900	71	725		9	28	7	

Check Logs *(Figures = Number of QSOs)*

CP1FF (20), DL1DQJ (16), DL1ET (53), DL9GGA (135), LA1IO (12), LA2IJ (1), LA4LN (150), SP2LNY (42).

Club Competition

			Total Score
1	Top Of Europe Contesters	(SM)	2370695
2	Low Land Crazy Contesters	(PA)	1796535
3	IBM Ham Club Finland, OH2AG	(OH)	1429830
4	SDXG	(DL)	1111110
5	Key Contest Team	(I)	1070280
6	Central Texas DX & Contest Club	(W)	1044140
7	Berlin DX Group	(DL)	825390
8	BARA	(W)	756855
9	RW6AWT	(UA)	753480
10	Berghem Contest Club	(I)	725515
11	Örebro Sändaramatörer	SM)	657805
12	Bavarian Contest Club	(DL)	600750
13	Sundsvalls Radioamatörer	(SM)	576520
14	Clay County DX Association	(W)	547995
15	San Diego DX Club	(W)	520840
16	SP Contest Club of PZK	(SP)	432030
17	Rappahannock Valley ARC	(W)	424050
18	Exiles Contest Group	(G)	387940
19	Platinum Coast ARS	(W)	365690
20	Cibola Contesters (AZ)	(W)	355000
21	ARI - Lecco	(I)	310050
22	YCCC	(W)	287580
23	BARTG	(G)	259875
24	Radio Klub "Zenica"	(T9)	245195
25	Minnesota Wireless Association	(W)	229900
26	ARI Como	(I)	209300
27	Central Arizona DX Association	(W)	178640
28	Veron Dep. 58	(PA)	170940
29	Madison DX Club (WI)	(W)	162640
30	ARI	(I)	158310
31	ARI Sez. San Donato M.se - 2004	(I)	154560
32	Western Washington DX Club	(W)	154500
33	The Jet Set	(GW)	144000
34	Frankford Radio Club	(W)	108805
35	ARI Lomazzo	(I)	106455
36	EDR	(OZ)	94400
37	Fagersta Amatörradioklubb	(SM)	84890
38	Wellington Branch 50 NZART	(ZL)	81090
39	DARC	(DL)	55440
40	Rhein-Ruhr-DX-Association	(DL)	52835
41	Shizuoka DX Radio Association	(JA)	42845
42	PVRC	(W)	39200
43	Lindesbergs Radioklubb	(SM)	31900
44	The Paraguana Team	(YV)	31330
45	Herrljunga Radioklubb	(SM)	29600
46	Brasilia Digital Radio Club - DRCB	(PY)	18980
47	RASH	(SV)	14490
49	QCWA	(W)	12075
50	LZ2KKZ	(LZ)	9625
51	OH3NE	(OH)	5510

Please make a note in your 1997 calender for the following events, sponsored by the Scandinavian Amateur Radio Teleprinter Group, S.A.R.T.G. :

Jan.	1	0800—1100 UTC SARTG New Year HF RTTY Contest, 3,5 & 7 MHz. *(A sprint test mainly for Eu)*
	1	1300—1500 UTC SARTG New Year VHF RTTY Contest, 144 MHz. *(A sprint test mainly for Eu)*
Aug.	16	0000—0800 UTC SARTG World Wide RTTY Contest, 3,5-7-14-21-28 MHz, part I,
	16	1600—2400 UTC SARTG World Wide RTTY Contest, 3,5-7-14-21-28 MHz, part II &
	17	0800—1600 UTC SARTG World Wide RTTY Contest, 3,5-7-14-21-28 MHz, part III.

SARTG WW RTTY Contest 1996 ⇒ *Comments*

9H0A (op 9H1EL): Band conditions very good for a sunspot minimum and with maximum absorbion at this time of the year. This is without doubt my favourite RTTY contest. The competition is much more fierce compared to my last effort in 1988, proving that it is much more popular.

AA5AU: I really like this contest. The 8 hour periods are great. It was hard to get a good rate going so we mainly stayed in the "hunt and pounce" mode. I had o young lady who was interested in contesting join me for a while during the 2nd period, thus putting me in the multi-op class. I also used the packetcluster. Thanks for the nice contest, looking forward to next as always!

AA9RR: The time segments used for this contest are great, but I sure wish we had better solar conditions!

AB5KD: SARTG'96 was another great test. I scored the largest score I have ever had this year. I know Jan SM5FUG and I were pretty close. However, Lars SM3KOR ran off and left us both in the dust. HI.

DL4MCF: It was o hard job with TVI-problems and small antennas.

DL7DUL: First contest with WF1B-software! Had o lot of fun and worked more stations than expected.

DL7VOG Quicker fingers from two years experience, better software (WF1B) and o new modem helped me to multiply my last years score with more than four times.

EO6F (op UX0FF): Nice contest — Many thanks !

G3YPN: I did not get many contacts but had a lot of fun.

G6G (op G0UJ0: G6G is a callsign issued to the *Exiles Contest Group* to be used in contests for 1996. QSL con be obtained via the RSGB Buro or direct from any club member.

GM3UTQ: I did not have a lot of time to operate but thought I would submit an entry anyway.

GW4KHQ: Due to finger trouble when amending log to score RW stations I lost 56 contacts. What a terrible feeling when you loose so many contacts after full 24 hours. Moral: Always back up or savelog at end of test before attempting any changes.

I2WEG: Long time since I worked any RTTY contest, but I observed that it was so nice and the skip was quite good, so I decided to give it o try again.

I4FTU: Good contest, the 3 time blocks contest structure is a very good idea!

IK2HKT: Unfortunately no propagation for Japan, in any case, great fun in SARTG.

IK4BWC: This year I have particlpate completely in all 3 time blocks and my score is better. Thanks for all, it was great fun! Very nice contest.

IK4ZHH: My first contest in RTTY.

IK7APK (op IK0HBN): On vacation in the south part of Italy, I asked Frank IK7APK to let me use his superb station for SARTG because I didn't want to miss this contest. I missed only the first round but enjoyed SARTG for the remaining 16 hours. Thanks Frank! Hospitality was warm and the coffee on Sunday afternoon really was what I needed... A special thanks to his wife for letting me occupy the second floor of their fine farm-house for an entire day!

IN3XUG: I hope on better propagation next year, it is very hard with only 100 watts output...

JA2NNF: Low band in summer season is hard to get into DX contacts.

JE1UFF: I really enjoyed this Contest. I wish I had a big Antenna !

JK3ZQJ: It's our first RTTY Contest and we had a lot of fun.

K7DSR: Great contest — enjoyed it very much. You fellows do a great job with it and I appreciate your efforts.

K8PYD: 9M2TO was the only Asian DX I heard except RK9CWA & UN5PR. No JA stations at all.... Surprise! Enjoyed my brief time on.

KA2CYN: Other obligations kept me away from shack at times. Most frustating incident was hearing VK in AM on 20m and being unable to turn roof mounted beam because house guests were asleep in quarters beneath roof.

KB9KWL: Sunday of the contest weekend 1995 my wife went inta labor. Son James was born early in the morning next day, so as I particlpate in SARTG 1996, and prepare for a 1st birthday celebration, I can reflect on the SARTG contest weekend that I will never forget!!

KD8FS: Europe on Sunday AM was good to hear.

KI4MI: I do claim the prize for the log with the most round numbers: score, pts, mults. (HI)

KQ4GC: Thanks for having the contest. It was fun!

LA7AJ: Fint at 10 og 15 meter bandene åpnet så bra, lite å se til syd-amerikanske og afrikanske stasjoner hos meg.

N1RCT: A deservedly popular contest with the best rules and prompt scoring. The fine turnaout more than compensated for the propagation.

N6GG: Conditions were erratic and unstable. But it was good to see so many old friends and make some new ones, too... 15m was open a little but very little activity. Same with 80m.

NF6L: Highlights were working an HL on 40m and finally getting ZL2JON after much effort on 80m followed by VK6GOM at my sunrise. Lowlights were hearing East Coast and W5s bagging Euros on 20m that I couldn't hear. Also where were the multitudes of JAs?

NI4H: First time ever to submit logs for contest.

NO2T: I love this contest. One can concentrate on operating rather than overcoming fatigue. Propogation was poor. I could not hear many stations an 15 meters. Ten was hopeless.

OH0/DL6LAU: This have been my first steps in RTTY. Had ta take care af my 7 month old son most of the time but seems that he liked the flashing lights on the ptc...

OH2BP: Taking a little nap af two last hours at the end of the 2nd period decraded my position in the top list. Next time all minutes are valuable, HI.

OH2LU: Deligted at the good activity. Even 21 and 28 MHz bands were occupied by contest stations, o rare exception to many ather recent events. The SARTG rules with pre-defined operating and rest periods are exemplary.

OK2EQ: I used a homemade TRCVR, 80W in, homemade compiled PC XT with Hamcom program, and antennas was LW for 80m, GP for 40, 20, 10m and a 3-el yagi for 15. It was a nice contest.

ONL 383: Despite the poor propagation there were high activity particularly from European stations.

OY4TN: Håber at være mere aktiv næste år.

OZ9AG: En god test p.g.a. opdelningen i 3 perioder. Desværre kunne jeg kun deltage i den sidste periode samt en lille smule i slutningen af 2. periode.

PI4CC: The RTTY mode is growing. There was o lot more activity than last year. We improved our score by 90% so is going right way. CU next year!

SM0DJZ: Det är ju ganska enkelt nu-för-tiden med WF1B-programmet att baro sitta och leka med musen.

SM0TGG: Vy good contest this year — used computer log for the first time — what a difference!

SM3BJV: Trevlig test och det mesta funkade bra. Tycker vilo-perioderna var bra, hoppas det kommer fler tester med liknande period indelningar. Tack alla contest-deltagare för en trevlig helg.

SM3BYJ: Trevlig tävling, som verkar uppskattad. Kan det vara för de välkomna pauserna?

SM4DHF: Gick till och från många gånger efter att ha tröttnat på att ropa 30-40 CQ utan svar.

SM5EIT: Became 75 in July and now working contest only daytime.

SM5FUG: My alarm clock did not work so I lost almost four hours af the first period and everybody was at least 100 QSOs ahead of me from beginning. Anyhow I had fun, activity was quite good especially from Europe. Propagation was as good as can be expected, 10 and 15 opened fine for Europe on Sunday.

SM6BSK: Kul att höro så många stationer igång, trots de mediokra kondsen.

SM6BUV: Det var jättetrevligt att vara med i RTTY test igen. Jag kör med mina gamlo grejor och dom fungerar ju OK men det märks ju att dom som har fullt datoriserat får ett bättre flyt.

SM6OLL: Startade försiktigt i min första RY-test. Pga det fina sommarvädret blev resultatet magert för min del, men kul att vara med! Uppläggning på 3 pass verkar vara bra !

SP9LKS: My congratulation about very nice SARTG WW RTTY Contest.

SV1BDO/7: Eventhow the propagation was not good, there were some good openings on 15 and 10 meters

T91EZC: Radio Klub "Zenica", Asko Borica 16, 72000 Zenica, Bosnia & Herzegovina.

UK7F (op UK8FF): QSL via W3HNK.

UR4FWI: Many thanks for the nice test!

VE3FJB: Great contest as always, even with the low score.

W2UP: Nice activity! Highlight was working VK6GOM 40 m longpath about one hour before sunset.

W6IWO: I could hear some stations from Europe & Scandinavia but could only work a few. Even when propagation is good the East Coast wall makes it difficult to work that area.

WA4JQS: Great Contest!

WA4VQD: This year I decided to go single operator. The schedule is very good for the single operator. I like the idea of being allowed to enter a single band also.

WF1B: This was a blast, this was only the second contest from my station. Usually, I try to borrow K1NG's nice station, it was a thrill to see what I could do here.

YL2KF: I was quite surprised about big activity from many RTTY stations.

YW1A (op YV1AVO): First time in RTTY contest, good contest, cuagn next year.

YZ7ED: Poor conditions, lot of static an 40 & 80m. My first SARTG contest. QSL cards OK via bureau or via YU7AL.

ZL2AMI: Most contacts were made in the first operating period, and only 40m and 20m were open. Thanks to 9H0A for the new RTTY Country worked an long path on 40m.

Club Stimulates RTTY Interest with Kit Project

Part II

by Jan A. Heise, K4QD
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Background

The Platinum Coast Amateur Radio Society (PCARS) is a radio club in Melbourne, FL. The club has over 250 members, but many of them are only with us during the winter. Over the years Don Winn, AF4Z, the club technical chairman, has led many different club construction projects. This project started in early 1995 when several club members expressed an interest in an RTTY unit to work with the shareware Hamcomm software. Several members provided system requirements and design input, and the result was a full-featured AF4Z Multi-Modem.

The goal was to keep the price affordable to all club members, but build a quality unit equal to or better in performance than commercial TNC units. The unit also had to be fun to build and easy to assemble and tune, even for an inexperienced kit builder. Hence, a lot of thought and effort went into the design, component selection, and PC board layout. To help with assembly and prevent solder problems, the PC board was silk screened showing part placement. The bottom has a solder mask to prevent solder bridges and to give the kit a more professional look.

Don did the electrical design, schematic capture, PCB layout, and parts list. One of the club members made a tooling jig to allow the chassis to be drilled. Several club members got together on a weekend and drilled and silk screened the units. On another weekend club members got together and packaged all the parts into kits. One of the members took a kit and wrote the assembly manual while he assembled his kit. Thirty-five kits were originally packaged for club members who signed up for the project. About fifteen club members participated in the various tasks required to make the project successful, and as time went on it truly became a club project.

Functionality

The AF4Z Multi-Modem was designed to support all the features in Hamcomm. Hamcomm is a shareware package which was developed by DL5YEC. The multi-modem was primarily designed for 45 baud RTTY; however, it can be used at much higher rates. It will operate in either FSK or AFSK mode. It supports up to 110 baud ASCII and CW reception and transmission. The unit also supports multiple Amtor modes. By using the built in comparator demodulator, the unit supports WEFAX and NAVTEX. With other software, such as JVFAX or SSTV, it can be used for SSTV transmit and receive.

The computer interface can be wired for use with Hamcomm or with other software packages such as RTTY by WF1B. Many of the club members purchased both of these software packages. I have found that for general RTTY rag chewing , DX work, or experimenting with the multiple modes, I like using Hamcomm. But for contest work, I use the WF1B software.

Mechanics

The PCB for the unit is 4" x 4.5" in size and has over 100 parts. It is housed in a Radio Shack enclosure which is 3" H x 5" W x 6" D. The enclosure is clean and simple. On the front is a four position rotary switch to turn on the unit and select the mode. There is also a power LED and an LED for Mark and Space tuning. The back panel contains two 1/8 inch phone jacks for separate audio input and output, 12V DC input, a five pin DIN for AFSK and PTT, and an RCA jack for the FSK/CW keying output. A cable with a serial port connector was provided for the computer interface.

Of course there are always those of us who cannot leave anything alone. I have added scope and external tuning indicator outputs on the back of my unit. Several others have added a driver chip and DIP LED indicator on the front to allow easier tuning than the mark and space LEDs. Also, the Hamcomm program uses different RS232 pins than RTTY by WF1B, so some of us are using cable adapters or have installed a switch to change the signals going to the computer. The unit is designed to allow easy modifications as new software programs become available.

The Results

As a part of this project, in order to get club members some experience in operating RTTY, we organized multi-operator single transmitter efforts using my WA4VQD call for the August 1995 SARTG contest and the September 1995 CQ/DJ WW RTTY contest. In both these contests we had several operators who had *never* operated RTTY before, and only a couple of us had ever used the WF1B software. We stressed that the objective was to have fun and get some experience, but everyone really got into the competition. After those two contests we had twelve people who had good RTTY contest experience. As an added bonus, we achieved a certificate for third place multi-single in the SARTG and third place multi-single USA in the CQ/DJ WW RTTY contest.

Over twenty of the club members have completed the kits. There is nothing like a contest or DXpedition to really check out a piece of equipment. Several of us first used our own AF4Z multi-modems for a contest in the 1997 ARRL RTTY Roundup. I was extremely pleased with the performance of my unit and my second place SOH in the Southeastern Division. I used my multi-modem with a small oscilloscope for tuning. The unit had the ability to copy signals I could barely make out on the scope or hardly hear. Ever since that contest, my commercial TNC has been sitting in the closet.

Our club organized a multi-single high power contest effort using the multi-modem and Don's AF4Z call for the DJ WPX RTTY contest in March 1997. Again the unit performed very well and we received a plaque for our efforts. I tried to convince everyone it was just the unique AF4Z call, but Don insists it is the superior performance of the multi-modem. Experience helps, but it is not everything because once again we had a couple team members who had not operated RTTY. Of course I also attribute our success to my unique training method. I stand over the operator's shoulder with a ruler in my hand and hit his knuckles whenever he pushes the wrong key on the WF1B software.

The July 1997 NAQP was the first time that some of our club members participated in a contest on their own. We had ten local club members in the contest. Eight of us used our AF4Z Multi-Modems and each of us was very satisfied with the performance. Some of us were more satisfied than others with the scores, even if we did not win any plaques. Our next months club meeting program will be "NAQP Murphy Tales" or "The reason I didn't do better in the NAQP was. . ." Oh, by the way, the "Pile Drivers" owe the "Florida Space Coast Team" dessert after the club meeting.

Conclusion

The AF4Z Multi-Modem turned out to be everything that we wanted in a club project. It helped introduce a number of hams to RTTY operating and contesting. It also helped them understand how RTTY works and improve their technical skills. This article will be followed by a more technical article on the AF4Z Multi-Modem. It will contain a block diagram, technical overview, and description of how the unit works. Don ordered additional boards and parts for more kits and has them available for those who would like to build one.

Acknowledgments:

AF4Z Multi-Modem kit is available for $79.95 from:
Don Winn, AF4Z
1882 Barkley Ave.
Melbourne, FL 32935
(407) 254-9495
dwinn@tng.net

Shareware versions of Hamcomm are available on many BBS. Hamcomm Version 3.0 is available for $30 from:
Wilhelm Schroder, DL5YEC
Augsburger Weg 63
D-33102 Paderborn, Germany

RTTY by WF1B Version 2.5 is available for $40 from:
Wyvern Technology, Inc.
35 Colvintown Road
Coventry, RI 02816-8509
(401) 823-7889
wf1b@ids.net

Biographical Sketches:

Don Winn, AF4Z, is an electrical engineer at Harris Corporation Government Aerospace Systems Division. Don is an Extra Class licensee who was first licensed in 1965. He enjoys design and construction of ham radio projects, and has led many technical club projects in local amateur radio clubs.

Jan Heise, K4QD, is an Information Systems Manager at Harris Corporation Electronic Systems Sector. Jan holds an Extra Class license and was first licensed in 1964. He enjoys DXing, contesting, and RTTY operation. Jan was a member of the 1995 South Georgia Island (VP8SGP) DXpedition team.

73, Jan A. Heise, K4QD

Travels With RTTY

GITMO DJ/CQWW RTTY Trip

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Although GITMO is a common name among all US Navy personnel, it is probably not as familiar to other people. GITMO is the civilian term for the Guantanamo Bay US Navy Base (GTMO). In years past this was a Navy training area where ships came on training exercises. The base covers about 45 square miles on the southeast end of Cuba. During the 1960's people wondered whether the US would be able to maintain a presence in the area. The water supply and virtually all other support were cut off from Cuba. However, these problems were overcome and the GITMO, KG4 land, is still a valid DXCC country. Many will remember the 1994 evacuation of the civilian population from GITMO. This was when the military families were removed because some 40,000 refugees from Cuba, Haiti, and other locations were put in camps on GITMO. These camps, while much smaller, still exist today, and one of the current missions of GITMO is to provide a staging area for refugees.

The idea for a KG4 contest trip came about back in June when Bill Gallier KQ4GC (KG4GC) and I were discussing his July trip to GITMO. Bill and I are both retired military, and we had often discussed places where we could obtain military flights to operate ham radio. Bill agreed that while he was there in July he would try to line us up clearances to go back in September. Fortunately things went well and we were able to get clearances. There are regular military charter flights out of Jacksonville Naval Air Station (NAS) every Friday. Bill lives near Jacksonville, so he went up as soon as he was allowed and got us on the space available waiting list.

Bill and I decided to travel light. We arrived at Jacksonville NAS on Friday morning September 27th, the day of the contest, with our carry-on luggage in hand. We used the typical DXpedition technique of pretending that the bags were light and placing them inconspicuously off in a corner until it was time to make the break for the plane. We sat in the base operations terminal on pins and needles as we waited to see how full the flight was going to be. As retired personnel flying space available, we were the lowest priority. Our fall back position was to go to Bill's house and operate a multi-single from there. Bill has a well-equipped shack and two towers with a great array of antennas.

As it turned out, we were fortunate, and we were able to get on the flight. We arrived in GITMO early in the afternoon. We were met by Rusty KG4AU, our sponsor and third member of our multi-single team. We had gotten permission from the ham club members to use the club station for the contest. After a quick stop to confirm our reservations at the Navy Lodge, we headed straight for the club station.

The club station has a nice pole with a tri-band beam up about 70 feet. Unfortunately, it is located at the bottom of a hill which is about 60 feet high. The station has a delta loop on 40 meters, an inverted V on 160/80 meters and an inverted L on 160 meters. The shack is well-equipped with a Ten-Tec OMNI VI and Centurion amplifier with a MFJ tuner. For RTTY there is a KAM Plus and a couple old 286 computers. From Bill's previous operations in GITMO, we knew that the area had a very high noise level. This is primarily due to the vast array of electronic equipment there. Hence, we took a Timewave DSP 59+ with the version 3.0 software. We also took a couple laptops, my AF4Z Multi-modem, and a big assortment of cables and connectors.

KG4GC DJ/CQWW RTTY Multi-Single team at the club station in Guantanamo Bay, Cuba. L-R: Jan-KG4QD (K4QD), Rusty - KG4AU (AE4HW) and Bill - KG4GC (KQ4GC). The team scored over 1.4 million points in the contest. --Photo by KG4HE

Upon arriving at the club station, we immediately started getting everything set up and checked out. Neither Bill nor I had any experience running RTTY using the Ten-Tec equipment, so we had our share of surprises as we started configuring and checking things out. However, we got things done a couple hours before the contest and were able to make about one-hundred contacts to wring things out and get the feel of the equipment.

Bill and I literally moved into the club station for the weekend. There was a cot in the shack, and Kim, KG4KD, and Wayne, KG4WD, kindly brought us down a sleeping bag and pillow. They also went by the commissary and stocked the refrigerator with food and drinks for us. As it turned out, Rusty's work schedule did not permit him to spend as much time as he wanted with us during the contest. However, he joined us to operate when he could, and he provided us valuable logistical support (trips to MacDonalds).

Bill - KG4GC (KQ4GC) the team leader of the DJ/CQWW RTTY Multi-Single team effort at the Guantanamo Bay, Cuba Amateur Radio Club Station. --Photo by K4QD

We got off to a great start on Friday night. We decided to work nothing but 40 and 80 meters Friday night. We operated in four-hour shifts and alternated between the two bands. Saturday morning we went to 20 meters and then got a great opening on 15meters. We also found some short openings on 10 meters which we checked regularly. We felt very good about our first 24 hours of operations as we had over 900 Q's half way through the contest. Rusty was elated; however, Bill and I knew that we would probably be begging for contacts towards the end of the contest.

Saturday night seemed to drag more than Friday. The four on-four off routine can get old after a while. However, it beats doing the contest alone. We were glad that we took advantage of 15 meters on Saturday because on Sunday the conditions were not as good. On Sunday we got to meet the remaining active ham on GITMO. Ray, KG4HE, came by to visit and offer encouragement. Most important of all, he brought me my KG4QD license which had previously been approved and completed.

As the contest winded to a close, we found ourselves stretching to reach our goal of 1500 contacts. We hit 1500 one minute before the end of the contest. After cleaning up the log we ended up with 1471 contacts; 80M=95, 40M=441, 20M=548, 15M=358 and 10M=29. Our final raw score was over 1.4 million points. We worked four stations on all five bands AA4FC, AA5AU, N4XWC and YV5NFL. We could have improved our score by taking a second rig for spotting and working multipliers on other bands. But, we can save that for next time. After all, we had to leave some room for improvement.

Bill and I spent the rest of the week making about 2500 more contacts on all bands and modes. We caught the Friday flight back to Jacksonville after waiting what seemed like an eternity to be called on the space available list. Bill's highlight of the return trip was being forced to unpack all his dirty laundry to show prove that the six bottles of Jamaican hot sauce he packed were not alcohol.

We had a great time during our week at GITMO. We want to thank all the hams that contacted us there. We especially want to thank the hams on GITMO who helped sponsor and support us. Bill and I will both QSL one-hundred percent for all contacts we made via our respective home calls; KG4GC via KQ4GC and KG4QD via K4QD.

RTTY by WF1B

Intermediate and Advanced Techniques

by Dick Stevens, N1RCT
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INTRODUCTION

The big step in contesting for most of us is obtaining RTTY by WF1B software. An article on obtaining the Demo version was published in the October '96 DJ. But there are other software programs available suitable for RTTY contesting and and have been endorsed by contesters: HAM by OH2GI, EasyTerm by W1EOR, Scotchlg by WA7EGA, WriteLog by W5XD, Log-EQF by N3EQF, Lan-Link by W3/G3ZCZ, COMPRTTY, and Marathon by N0IOS for the Macintosh. Others have used dual systems such as Windows Terminal for operating and CT for logging. Hopefully, what follows will be largely applicable to all contesting programs. Which brings me to the most important suggestion: READ THE MANUAL! Read it AGAIN! Read it before every contest. Nobody knows the program like the author.

PART 1: Getting Serious

Internet access is crucial for the contester. It's where you find the rules, the results, the schedule, ask questions, learn late news items, and generally become aware of what is happening on the RTTY contest scene.

- WF1B HOME PAGE: Info on RTTY by WF1B, latest version, patches, Friends.ini by PA3ERC, Contest records by W6/G0AZT.

  Http://www.wf1b.com

- WF1B REFLECTOR: Latest news on contests, questions on any RTTY topic, High Claimed Scores by contestants, HCS Summaries by WA4ZXA. Subscribe by sending a message to <wf1b-rtty-request@wf1b.com> with the following text in the BODY of the mail message: subscribe wf1b@ids.net (ur name, ur callsign>

- OH2BUA WEBCLUSTER: The definitive world-wide DX Cluster accumulator, which may be used in a contest depending upon your class and contest. This URL is for digital only: <http://www.clinet.fi/~jukka/digi.html>

- IDRA WEB PAGE -Rules, Calendar, News, Info, selected articles, and Software; a major resource for all Digital Operators. <http://www.n2hos.com/digital>

- The Digital Journal: The major publication on all things Digital. <http://www.n2hos.com/digital/menu.html>

You should be plugged into all of these. Some contain links to other info of interest. All this hullabaloo will help psych you up to make station improvements and get ready for the next contest.

BACKUPS

Murphy's law is at it's peak during a contest. There are some techniques that will protect your log files (.BIN, .NDX, .WKS) with backups. Actually, a combination of techniques is needed for 100% protection.

- AUTOSAVE ON Type this into the callsign box each time you reboot the program.You must have a diskette in the A drive. It will immediately write a copy to the diskette and every hour on the hour thereafter. As the logs get bigger, the write time will take longer and it can be disconcerting when you are in the middle of a contact at xx00 hours and the computer goes into autosave mode. 500 QSO takes about 10 seconds. This method still leaves up to an hour of contacts without backup.

- SAVELOG A Type this at frequent intervals when free. This will supplement or replace the AUTOSAVE hourly save.

- PRINT ON Type this to send each logged call to the printer. This gives a nice record that can be manually typed in to add the few calls logged since the last save to diskette ... but you may not like the noise. Another option to protect those last few calls is to use a shareware program: PRN2FILE.EXE. This little TSR program can be used to intercept the printer output and store it in a file instead of actually printing it. I use PRN2FILE but there are many more available by an Inet search or E-Mail to me. It is best implemented in the batch start up file. If you have to reconstruct some calls, print them out, enter as a normal contact into WF1B and then correct the time/date with alt-E.

BATCH FILE

When you start using some of the program bells and whistles, it's easy to forget something. I like to start up with a batch file which can be quickly created with any editor; the DOS EDIT program is fine. For instance, I am gearing up for BARTG97, I'll be using RITTY by K6STI, and I want my printer output to be redirected to a file d:\rtty\bartg97.sav. I have a very large FRIEND.INI file and want to limit the reserved QSO memory to 1000 contacts to make lots of room for the friend.ini file and RITTY.

Type EDIT to start the DOS editor and enter the following lines:

```
DATE                    :: Push enter if OK
TIME                    :: get it right via WWV
C:\MISC\PRN2FILE  D:\RTTY\BARTG97.SAV :: installs PRN2FILE Utility
LH RITTY I              :: installs RITTY TSR
COPY RTTY.SAV RTTY.INI      :: I keep master copy as rtty.sav
CALL RTTY -1K BARTG97       :: Start RTTY with 1000 QSO max
RITTY U                 :: removes TSR when I quit RTTY
C:\MISC\PRN2FILE /U         :: removes prn2file TSR
```

Then press alt-F, save as, and call it BARTG.BAT

Now, typing BARTG will automatically load everything and bring you to the profile data page; select the proper contest, TNC, etc. as usual, the first time.You will have to type in AUTOSAVE ON, PRINT ON, etc. when the main screen appears EACH TIME you fire up.

MACROS

The macros on PF keys 1-10, shift-PF 1-10, and alt-B, can all be customized for the responses, techniques, contingencies, and styles you wish to use in a contest. The August '96 issue of the DJ contains a long article on WF1B macros which is also available thru the IDRS Website mentioned above. The following are a few updates to that article:

The <TU> Command:

In addition to the [HI] file, Ray gives a second chance to communicate the <TU> keyword. The [TU] list is also included in FRIEND.INI but in a section headed by [TU]. You may put any message after a callsign here; Ray says "Let your imagination

be your guide." These will probably be for relatively few callsigns. One use is for the regular contester whose name you need (the OM's in the <HI> file); checking on a friend's progress; or general cage rattling.

```
[TU]          ; brackets, not <>
AA0XX=PLS UR NAME?    ; Not in Callbook
T91ENS=PEACE FOR ALL   ; Sarajevo Radio Club
KK5OQ=HOW MANY QSO NOW? ; Can't use a Keyword or could send mine auto
WF1B=EXALTED MASTER   ; short form for contesting
```

Long or short responses? I use the shift-PF macros to give a longer version of the normal macro for the hard of hearing. An equally valid use is to make the shift-PF keys a shorter version for strong stations and when time is of the essence, such as S/P while running a frequency, particularly powerful with a two-rig station. Also, a long CQ can be transmitted by simply pressing the short CQ key twice. HAM by OH2GI permits selecting a general short-medium-long mode for selected macros, which allows rapid adjustment to conditions. See the programmable keyboard section below for even more options.

RADIO CONTROL
Ever get the radio on a different band than WF1B is set for and mis-log a contact? This can cost contacts not to mention the WRK B4 fingers. The solution is using the Rig Control feature of WF1B. If you have a suitable radio, changing the band on the radio will automatically change the main screen band for logging; and changing the band on the screen will change the radio VFO to a frequency you have pre-selected for each band. Really great at 3 AM.

Rig control requires another COM port, an adapter cable to convert from RS 232 levels to the levels used by your radio (I use the MFJ's, $50), a capable radio (most newer ones), and some set-up info in the RTTY.INI file. Detailed instructions are in the manual; for my rig, I had to add a COM port specification as it is non-standard, and a radio section:

```
[COM4]
BaseAddr=$2E8
IrqNumber=5
HandShake=none

[RADIO]
Type=kenwood
Comport=4

80=3578
40=7075
20=14070
15=21075
10=28080
```

I use the bottom edge of the band to start as I do a quick tune thru looking for any new ones before CQing; you may want to use your favorite run frequency. In the big contests, you will want to start lower down. If you are in Europe or feeling lucky, 7030 is a better place to start. RTTY by WF1B will get very upset if you turn off the radio while it is
active.

PK232/900 HOST/CMD MODE
If you are using one of these TNC's, you have a choice of using it in HOST or COMMAND mode. Picking the TNC from the profile page as PK 232 or PK 900 will cause it to be used in the HOST mode, where only a few commands programmed into WF1B can be set by alt-T. Many prefer to be able to change the TNC around on the fly with the full command set; selecting AEA CMD SET as the TNC permits this. I like to be able to switch RFRAME on and off as needed, for instance. If you are using the HOST mode and the computer crashes so you can't exit WF1B normally, the TNC will be left in the HOST mode, a very dumb state. To get it back to normal, run AEAUTIL provided with WF1B.

COLOR MODS
You may want to change the screen colors from the default. /to do this, exit WF1B and run the COLORSET utility. This will be a little bit of trial and error to find a combo you like. I prefer a black background with yellow type to ease eye-strain. Be sure the Callsign block is highly readable in the highlighted mode. Make notes of the setting numbers you like in COLORSET; if you upgrade to a newer level, they are reset to default.

FINAL LOG EDITING
I keep a steno notebook of my boo-boos in logging and other notes of interest as the contest goes on. I make the changes to the log as soon as I have a moment using alt-E. But some are mysterious like "Why was ZL2 at 2221 not a new multiplier?". These require investigating afterward. When you have made all the changes you can with alt-E, EXIT the program and then restart. The changes you made are not recognized until you reload. Then type WRITELOG to prepare all the paperwork automatically.

The results at this point are probably good enough for HCS listing but a closer examination is prudent. I make a copy of the files for auditing in a separate directory. First, examine the rules again for exactly what must be submitted to the contest committee. WF1B often prints out more files than are required for the contest; but they may be useful for your own checking. A good text editor with sort capability is essential; I like the shareware BOXER editor. Using a COPY of the testxx.ALL log, sort all the lines by the callsign. If you see, for instance, that you worked AB5KD on 80,40, and 15 meters but only AB5KDD on 20 meters, it is time for intense retrospection.

As the callsign prefixes change and new ones are added, check that a multiplier was given; especially states/provinces when they count.Worked a rare one or an unusual callsign? Check that the country code is correct; these are forever changing. You can modify the prefix list with the COUNTRY routine. Check the number of NEW COUNTRIES against the multiplier used in calculating your score. Watch the WF1B reflector; other competitors may post any problems they found. Look at your log with a suspicious eye and understand it all. If something strange still remains, put a comment on your summary sheet pointing out the possible problem; much better than them finding it.

The Summary Sheet should be extensively enhanced; be sure Low Power class is indicated explicitly if so; include your operating times if required; add some nice words (or at least from the heart) for the committee. Make the summary page as polished, complete, and accurate as your attached log; it creates the first impression. Mail it First Class Airmail overseas.

PART II: ADVANCED WF1B TECHNIQUES

MAXISWITCH 124 KEYBOARD
This keyboard (abt $65) is a contester's secret weapon. It has 20 extra keys that you can quickly program for frequently used multiple key-stoke commands, a great help if you do not have a pianist's moves. For instance, searching for a log entry requires alt-E, F1; to use this with the MaxiSwitch, the sequence is entered once using the macro key onto an unused key such as the left hand PF3 key, which I mark "EDIT"; now pushing the LH F3 key brings up the box for entering the callsign to be searched for (and not having to remember the commands). I have similar keys for such things as Call, Check, Wipe, Kill Last; and sever-

al others. The top F12 key is nice for the alt = reverse tones command. You could also copy the top PF keys onto the right hand calculator keyboard for convenience. The key settings can be saved in a files and different sets called up for each program you use. Most of the 124 keys can be reprogrammed in normal, shift, control, and alternate modes.

Additional operating macros can be created beyond the 21 provided by WF1B; for instance, the sequence alt-K, CQ CQ WARMUP DE N1RCT N1RCT K , alt-K gives something to do before the test starts, but no keywords (like <11>) may be used. Mine came from Next International 1-800-730-6398, about $US 68.

PARTIAL & SUPER PARTIAL CHECK

Got a partial call that you may have worked already on a better band? Enter the first letters that you are sure of and press alt-P. This will give a list of possible matches among the ones you have already worked in this contest. No luck and getting desperate? Push ctl-F4 and get the possible matches from 2200 callsigns of known contesters stored in MASTER.CAL file. Guessing a callsign is dangerous and more confirmation is needed. You can add more callsigns to this file.

Actually, I substitute a copy of my FRIEND.INI file for MASTER.CAL. This permits me to use ctl-F4 to also look up someone's name and is more up-to-date with new contesters I have worked.

Here is an example of super partial check. I think I saw a WG and enter it in the lower left. Pushing ctl-F4 gives the screen of Fig. xx. It shows that I have worked three with WG in their callsigns in this contest and have eight in my master.cal that are possible matches. Looks like its either Mike WG5C or Dave WG3I. I have already worked WG3I on the band so I try try WG5C? and hope to get a confirmation. It gives a little more encouragement to the caller to keep trying. See Figure 1 for detail

Fig. 1 Super Partial Check

```
RTTY by WF1B v2.5f Copyright 1990-1996 Wyvern Technology, Inc.
Ready
RXGGYYRYRYRYRYRXGOHZ
Super Partial Check   '*' = worked this contest
*WG5C        *WG3I         G4WWG=A.S.   PA3EWG=HPJ?  WG5C=MIKE    WG9L=BOB
*IK5WGK       DL1ET=EWGEN  IK5WGK=DAMI  WG3I=DAVE    WG9B=JOHN

GFJEWVIN4.2
ME16FR EI3F
NEIGHFJ BA OH3NGB OH3NGB OH3NGB AR
ESB GW!&;
G0PSE G0PSE G0PSE DE OH3NGB  "OH3NGB"  OHJAMGB OH3NGB AR
SZK8,6:132!$. QXTV
TJNK
G0PSE G0PE G0PSE DE OH3NGB  "OH3NGB"  OH3NGB OH3NGB AR
EETQYNGCHNB H
JC
W 1 2 3 4 5 6 7 8 9 10 15:25z Que 20 TU Log NOR
80 950924 2345 WM2U          599 ME  05 599 NY  05 W              1
80 950924 2347 WB2HMF        599 ME  05 599 NY  05 W              1
80 950924 2354 WG3I          599 ME  05 599 NJ  05 W              1
80 950924 2355 VE2BOB        599 ME  05 599 VE2 05 VE             2
Current QSO                                          Tuning
WG              5  59
```

SCREEN SAVES

Occasionally, there is print on the screen that we want to save. Unfortunately, WF1B does not yet have a way of saving the contents of the screen. The quick way of handling this is by using the PRINT SCREEN key to get it on the printer. This has the advantage of being available without exiting to DOS. If you don't actually need the info right now, the shareware "Screen Thief" will save perfect screen prints in living color or mono, neatly numbered. There are also shareware programs that re-direct the "Screen Print" to an ASCII file; but this may interfere with your backup scheme.

COUNTRY/PREFIX MODS

Worked a prefix that WF1B will not recognize or give you credit for? First, be confident that the prefix is correct and the country known.You might try downloading the latest country files from the WF1B home page. These contain the list of DXCC countries (rarely changes) and the prefixes which identify the country, which change all the time.

MERGE MASTER LOG

The MERGE.exe program will let you put two or more contests into one log, up to about 5000 entries in one log. This mass of data has many uses, particularly when converted into a form importable by other programs; examples for DXCC, WAS, Lotus 1-2-3, and plain test follow. Just type MERGE and the simple directions are given.

LOGBOOK CONVERSION

It is often useful to get the contest results into other formats that can be manipulated, read, printed, or used by other programs such as Log-EQF. The provided CONVERT.exe program will convert into several formats; the LOGBOOK option converts to a plain ASCII file that can be manipulated in many ways using a text editor.

Log-EQF is my favorite program for tracking DXCC status. It has a very good import facility and with a few key presses, it can add the latest WF1B contest results to the database and reveal any new countries. It will also accept my Lan-Link rag chewing calls and so consolidate everything.It can also do QSL labels and address labels from a CD-ROM. To get a WF1B file into Log-EQF, simply use CONVERT.exe to create a new file in CT/K1EA format; then use Log-EQF accept the CT file, perhaps a minute altogether.

Another use of of the MERGE program is take all the ones where the state is exchanged (Tara, Roundup, WPX, CQWW) and import into Log-EQF and see the stats for 5-Band WAS RTTY (unofficial) from contests without looking up anything more.

STATS.EXE

This program provided with WF1B will calculate the QSO rate statistics for you after the contest is over. Here is a small section of the statistics it will output; the first hour shown was the first time Europe could be easily worked on 20 meters and there was a pent-up demand:

Output of STATS.EXE
Middle 8 Hr Session, SARTG '96

Total "DX"

Hour	Rate	Rate
16	61	33
17	41	20
18	32	9
19	17	3
20	20	8
21	18	11
22	10	8
23	23	11

Analysis of many contests will improve your feel of the "Hot Times" not to be missed and also a feel for when it is best to take time-offs. But for more detailed analysis, other techniques can be useful.

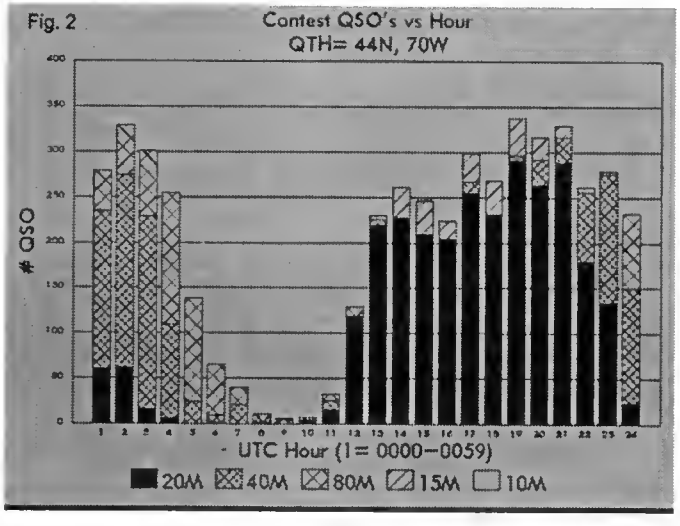
Fig. 3 RITTY Setup Parameters

```
RTTY by WF1B v2.5f Copyright 1990-1996 Wyvern Technology, Inc.
Free memory: 79K
Ready
                RITTY 1.29
                     (c) 1995-1996 Brian Beezley, K6STI
                          All Rights Reserved

                  Baud Rate: 45                    Tones: Normal
                Center Freq: 2210 Hz         Output Delay: 20 ms
                   RX Shift: 103 Hz             FSK Port: COM3
          Numerical Flywheel: Auto           TX Stop Bits: 1.5
                        AFC: On           TX Word on Space: No
            Unshift on Space: Yes      TX Redundant Codes: No
          Ignore Isolated LF: Yes        Add Begin/End CR: No
                                             Action on CR: CR LTRS

15 CENT     BMBVBCBCI
┤W├┤1├┤2├┤3├┤4├┤5├┤6├┤7├┤8├┤9├┤10├┤13:11z├┤Que├┤20├┤TU├┤Log├┤NOR├
80 950924 2345 WM2U          599 ME  05 599 NY  05 W                1
80 950924 2347 WB2HMF        599 ME  05 599 NY  05 W                1
80 950924 2354 WG3I          599 ME  05 599 NJ  05 W                1
80 950924 2355 VE2BOB        599 ME  05 599 VE2 05 VE               2
                          Current QSO                    Tuning
                  0  59
```

LOG ANALYSIS AND THE CONTEST PLAN

By importing band logs into a spreadsheet program such as Excel, 1-2-3, or shareware As-Easy-As, a chart can be constructed showing the time that contacts are made on the various bands. Fig. 2 shows about 9 contests and 4800 contacts. The WF1B logs were imported into Lotus 1-2-3 and then manipulated using the Data Sort and Data Histogram commands. This gives an idea when the bands are open and also when breaks should be scheduled. The info could also be sorted by callsign and the times and bands for JA contacts determined; a good text editor such as Boxer could do this without a spreadsheet. The MERGE program can be used to combine many contests and then CONVERT will produce an ascii file of the whole thing. All this info can give a start at making a strategic plan for the contest; On/Off hours and band/beam heading schedules. Having a plan of some sort lets you concentrate on the moment, reduces the possibility of a major mistake, and seems to break 48 hours down into a series of tolerable periods for me. The histogram gives a decent idea of when breaks should be taken and what bands are active AT YOUR QTH. See Figure 2.

Fig. 2



RITTY" Tips

RITTY (by Brian Beasley, K6STI) uses a SoundBlaster 16 card to do demodulation of RTTY signals using DSP techniques and will work as a TNC for RTTY by WF1B. It has received very good reports on it's copy ability. In it's basic mode, RITTY uses the transceiver's VOX circuit to initiate transmission in the AFSK mode. Here are some tips on using it:

- I keep the normal TNC hooked up as generator of the scope pattern; RITTY receive center frequency is adjusted slightly to give an exact match between the scope and the RITTY tuning bars. In final tuning, the RITTY bars are more sensitive than the the external scope pattern; but the scope is very informative on other matters. RITTY tuning is critical; use the tuning bars and even consider 1 HZ tuning steps when running.

- RITTY has a feature that will helps cope with overloaded front-ends from nearby strong signals but CW filters (I like 400 HZ) are still useful.

- Before the contest, start up RITTY alone to check all parameters; especially receive audio and transmit on all bands. You will not be able to change settings while in use as a TSR. A shift of 182 Hz is best. See Figure 3 for how mine looks.

- If your radio requires FSK to use the narrow CW filters, RITTY can generate the necessary PTT and FSK signals using a COM port. This can be a problem on crowded machines. However, the problem is eased by the fact that the required COM port does not require a unique IRQ or any IRQ at all as it never receives data; I use it with an ancient ham fest I/O card set to COM 3 which has the same IRQ as the mouse but COM 3 never receives any data so it never generates an IRQ that could lock up the mouse.

- If you cannot go to FSK transmission but are less than thrilled at using VOX to control the transmission, RITTY can generate AFSK from the sound card but use the PTT signal of the circuit mentioned above.

- If you want to use your regular software and TNC when the contest is over, a double-pole, double-throw switch can be used to re-route FSK and PTT wires to the other TNC with a single switch throw.

Are You Done Yet, Dick?

I am, but these subjects are hardly concluded and I have not tried to cover the many things that seem complete to me in the manual. The software and supported hardware will continue to change, and contesters will continually improve on all the above comments. Consider writing on your methods or send your comments to one of the regular authors in the DJ; they will gladly include your material and credit you.

RTTY Contesting - Myths, Hints and Advice

Beginning the Digital Contest Experience

by Jay Townsend, WS7I
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As we approach the bottom of this solar cycle, I find that once again there are a lot of hams out there interested in RTTY contesting. Most of you have the same questions that many of us have pondered over the years during the last doldrums of the solar cycle. Perhaps we can help you get started in the fun that is RTTY contesting. A few answers will be presented.

Like all contesting ,there are many ways in which RTTY contesting could become a challenge to you. First, you could try and become a World Class Contester in RTTY. Chase a bunch of wall paper, plaques, and see your call in the magazines and on the various electronic forum's. Second, you could just enjoy trying to better your last year's results and chase a little DX or just spend a fun number of hours using your radio and computer equipment. Third, you could just enjoy being part of a competitive event and helping those other guys and gals out in their quest for the win.

The world of 1997 is much easier than that of the previous solar cycle. One of the main ingredients has been pretty well perfected for you. That is of course the **software** to make the RTTY contest an easy thing. Its called WF1B, and is a computer program that does RTTY contesting. You need to buy a copy and get familiar with it. Ray, WF1B's perfection of the use of a mouse has enabled many to contest on the digital modes who can barely type. It used to be that typing was a great skill and your ability to type on the unit sending the RTTY as well as log on a separate keyboard was what separated some of the winners from those that merely place high. No longer. There are of course other programs which do a good job on RTTY contesting but the main choice is currently WF1B.

What is needed to do RTTY contesting is **a antenna farm** (anything from a couple of wires and a tribander to a multi-tower setup); **a radio**, **a TNC** (terminal Node controller), and **a computer**. We no longer do the RTTY of the old days with marvelous machines and tape and repref's. No longer is the smell of oil in the air and the clanking and clacking of the mechanical machine has been replaced by the glow of the computer screen.

Antennas and the RTTY contest. Here is where there is quite a major difference in RTTY contesting and in CW and SSB contesting. Most of the "normal" contests are constructed by East Coast Hams and they all most always favor DX and in particular Europe. This never has been the case in RTTY contests. Here States, Call areas, Provinces, and many particularly odd and fun things are nearly always part of our RTTY events. Antennas then don't have to be as big, arrays of aluminum while always neat to have are not as necessary as in other contests. The Tribander is still a pretty good antenna in a RTTY contest.

The radio. Here is the first place where you might need to do one of two things to really be prepared for RTTY contesting. Either you need to get filters (500 Hz or 250 Hz) or you need to figure out how to get a nice narrow signal. Usually, RTTY is copied in the FSK or RTTY position of a radio. You can do this in the LSB position but that usually means that you are on 2.4 kHz filters which just isn't going to work. There are some mod's to various radios to enable you to use CW filters in the LSB positions and there are some radios that are well set up for RTTY contests. The IF filter selection in your radio is perhaps the key ingredient that makes life easy during a RTTY contest. It is before TU (terminal unit) it is before software, it is before antennas. In RTTY the ability to actually copy during the crowded band conditions is almost always just a filter problem.

I am going to pick on one of the World's leading contesters in this column just to show you that no one is immune. Ron, K5DJ, who is the Digital Journal contest editor has LOUSY filters in his Kenwood TS-850. His final If 250 Hz filter is broken. It has been now for a couple of years. The reason he doesn't win every contest can be directly attributed to his filter problem!

Heat is the second big thing of RTTY contesting and needs to always be kept in mind. If you are running an amplifier, expect it to get much hotter than during CW or SSB contests. Put fans on everything and keep air flowing during the contest. Muffin fans can solve most of your heat problems from the basic rig to the amp. Don't ignore fans even on 100 watt radios. Oh, another fun thing about RTTY is that many of our events feature low power.

Terminal units have always been an interesting subject. If you study the reviews you will find that each and every RTTY person has an opinion on which is the best TU. Well, in the RTTY contest, the quality of the TU has little to do with your score. Anything that copies RTTY will work most of the time. Now, for the "big gun" the last little improvement will be in getting the great unit. For the average guy it really doesn't make much difference. I do believe that I have used nearly every make that has been made, and the sum total difference at the end of a contest would be less than the time spent getting one cuppa coffee.

Use what you have is the secret. However, there is one more little hint that might help. Get used to using your unit in many different conditions and circumstances. A RTTY contest is a wild event compared to the quiet of the normal band.

Tuning indicator. This might be one of the secrets. Get one and learn to use it. The best is the scope. You can buy the old audio scope at hamfests for about $20. There are several construction articles on how to hook it up to some of the new TU's like the P38 by Hal Communications. Many of the multi-mode controllers like the AEA PK232, Kantronics KAM, have facilities for directly wiring up a scope. The scope is much better than any other device for RTTY. Some of the digital LED devices work pretty well.

OK, so now you know what you need. But how does all this stuff work together. First, the computer need not be the leading-edge device. It only needs to run the program that you use. First, thing that you need to do is hook up the computer and install the software. These days most of the mystery is out of this part of the problem. Then after you have the computer and the software you need to interface the computer to the terminal unit. Each of these vary but generally its of one of two types. A card (Hal P38), or a external box of some sort. If its the card its pretty easy. If its the box then it becomes a bit more interesting. As you will need to learn about interrupts, serial cards, and the like. Ask questions of other hams and in particular of other digital guys.

Once you get things running the most typical problem is that you are transmitting upside down. What this means is that your signal which is essentially two tones are reversed in order. This might mean you are using the wrong SSB or that your tones are switched. Radios, have adjustments for this, and most of the software also lets you switch the signal. Ask, the very first guy you QSO if you're right side up!

Now to your software. Here you need to get on the dummy load, turn down the power and get on 10 meters or something and practice. You will need to customize the software and what it sends. As the program is almost always sending way too much junk. An example is WF1B, and its use of "K". Simply, get rid of these. As its a contest you are doing, speed, quickness, and brevity of what you send and what you receive determines how fast you can go (RATE).

A typical exchange: CQ TEST DE WS7I DE WS7I (Two De's as that is what activates the Mouse!)
DE K5DJ (send just your call, generally you're right on the same frequency)
K5DJ 599-WA K5DJ DE WS7I (I send his call Twice and expect a fill if wrong)
WS7I 599-TX DE K5DJ (He might do it differently)
QSL K5DJ DE WS7I QRZ (Call again – one more chance for accuracy)

So you can see that there aren't a bunch of KKK's, RYRY's, BT's or other junk. These are just my examples of how I personally do it. Others have different ideas, and some don't like my ways! Another little hint is to send leading and trailing (<CR> Carriage returns) which helps normal up the print and synch the various devices.

So now you have the "stuff" working. The single best way to start getting involved in RTTY contesting is to find a friend and do it together. This can be anyone from another local, a group, a club, or even people from different parts of the country. Share experiences, learn together, and expand your skills and most of all the fun and enjoyment as you do RTTY contests. Do single bands, do Multi's and do it on your own. They are all fun.

There are many contests on RTTY. Nearly, one a month now and they vary quite a bit in what is the main focus of the contest. Some like DX contests, some like rate contests, some high skill contests. What is one guy or gal's cup of tea is another persons pet peeve. Try them all. If there is one secret to how to be very successful at RTTY contesting its to get on the air and do each contest for a couple of years. Learn the rules, learn the bands, learn the game and enjoy it all.

As I am often asked which contest is my favorite I can say that the ARRL RTTY Roundup held in January is the best test of skill and ability of all digital contests. Another personal favorite is BARTG (British Data Group) test held in March. The big DX contests are the CQWW in September and the WW RTTY WPX in February.

73 Jay WS7I

Beedle Beedle

A series of digital snippets

by Crawford Mackeand, WA3ZKZ
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There is more than an undercurrent of discussion in ham circles on the likelihood that communication via the Internet will doom ham radio.

With all due deference to the doom sayers (and it's my personal feeling that not much such deference is due!), I think that the whole issue is one of mistaken identity. Will the real Ham Radio please stand up? Ham radio is not just personal communication. As most of us always realized, if you just want to talk to Cousin Fred in Oshkosh, the proper recourse is to pick up the telephone. And nowadays, if Fred happens to be in imbuktu, the same response applies, and likewise for most of the Timbuktus of the world. In times gone by, if you wanted to send a message of a more permanent but timely sort, it was a job for Western Union or another cable company, and nowadays, e-mail is a very worthy successor for most anywhere that Fred or Frederica may be.

Ham radio is not, never has been, and never should be, a cheap substitute, (or an expensive substitute for that matter) for the professional providers of communication. It can sometimes do the same job, and sometimes do it better, and sometimes is the only possible provider, but let's not mark it down to the status of a mere substitute. Ham radio is not about communication, it is about radio. Ham radio. That's what the name says, and in my book, that's what it means. If I can send my digital message over the Internet more transparently and more efficiently, whether to Oshkosh or to Timbuktu, that's nice, but it's not relevant. It's 99% likely it's not radio, and 99.999% sure it's not HF radio. And if it's not radio, how can it be competition for Ham Radio?

To belabor the point, ham radio is a study, an avocation, a hobby and a besetting interest in RADIO communication. Our own digital concerns are in my view highly legitimate where they are aimed at making the most of RADIO. And so are all the myriad other interests in hamdom. Public service, a quiet chat between friends, a DX challenge, the thrill of a contest, or the joy of even the smallest technical break-through or advance in our own understanding; all are likewise very real parts of this interest of ours; making the most of ham RADIO.

How can it possibly be substituted by another means of communication, better or worse, cheaper or dearer? If it's something else it isn't RADIO.

OH2GI - HAM SYSTEM V4.4

An All-Mode Contesting & Logging Software

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INTRODUCTION

OH2GI-HAM SYSTEM is an all-mode contesting and logging software system designed primarily for on-line operation of HF digital and CW radio stations through Terminal Node Controllers (TNC).

While the primary design objective has been to provide a comprehensive system for a digital/CW contest station, the system can be used for daily contacts, both digital, CW and SSB. Another important design objective has been the pursuit for utmost reliability and prevention of loss of data.

OH2GI-HAM SYSTEM supports practically all international digital mode contests on all HF bands. However, the system is adaptable to most of the CW contests for on-line operation and to most of the SSB contests for off-line logging and post-contest paper work.

SUPPORTED TNCs

The current version of OH2GI-HAM SYSTEM (V4.4) supports the main features of Kantronics KAM (V5.0 and up) and AEA PK-232MBX TNCs in multiple configurations. Support for K6STI RITTY DSP modem is included, the official release still pending.

The system allows simultaneous operation of up to two HF radios and one VHF radio in Two-TNC configuration, provided one TNC is a KAM in host mode.

MAIN FEATURES of OH2GI-HAM SYSTEM

General Features

- OH2GI-HAM SYSTEM can be used to operate and keep track of daily contacts with its built-in logging facility for 1.8 MHz to 50 MHz bands - The on-line logging facility can be used on all digital modes and on CW, while contacts on other modes, as on SSB, are recorded off-line - HF modes supported on-line: CW, RTTY, AMTOR, PACTOR and G-TOR (KAM) for both contesting and normal operation
- Pile-up mode is provided for contest style operation
- Simultaneous operation of two HF radios

Contest Features

- Contest support includes automatic contest generation with a set of standard messages pre-tailored for each contest, and the messages can further be tailored to suit to individual preferences
- The system detects duplicates, new multipliers and determines QSO points
- The system provides contest statistics on-line such as multiplier break-down by band, score calculations in total and by band, hourly QSO rates and operating hours
- Automatic formation, transmission and logging of QTC messages is provided for WAEDC RTTY Contest
- Automatic name look-up and name file update is provided
- On-line back-up facility is provided
- Post-contest paper work includes log generation, country/zone/call-area/state/province listings, dupe lists and contest statistics for subsequent printing

DX-Cluster Features

- The system provides full support for accessing DX-Cluster simultaneously with HF operation provided either one of the TNCs is a KAM operating in host mode or one TNC in Two-TNC configuration is dedicated to a VHF radio. The main features include:

- DX spot transfer to DX-Cluster
- Pick-up of DX spots either in CONNECT/DISCONNECT (Spy-mode) status
- WARC/SSB/VHF filter for DX spots
- File transfer to DX-Cluster
- File/info transfer from DX-Cluster to HF (RTTY, PACTOR)
- Contest statistics transfer to DX-Cluster - useful between openly competing stations and for multi-operator stations where operators at home can participate in the efforts of the main contest station

Support Features

Other facilities of OH2GI-HAM SYSTEM include:

- Operation with or without a mouse
- ANSI support for PACTOR
- File transfer from PC to HF
- On-line HELP files
- DOS command support
- QSL printing (IBM Pro-Printer tested)

SYSTEMS REQUIREMENTS

The main requirement for OH2GI-HAM SYSTEM is a Personal Computer with Enhanced Keyboard (102 keys), generally capable of supporting DOS V5.0 or upwards or OS/2 V3.0 WARP, with one or two COM ports capable of handling 9600 *bps* traffic.

OH2GI-HAM SYSTEM V4.4 requires 1 MB of HD space, utilizes standard VGA-type color display and mouse (optional). For on-line back-up facility another physical hard disk drive is recommended. On slower computers the use of performance facilities like SMARTDRIVE and RAMDRIVE is recommended. The system uses E.EXE editor. If unavailable, it can be substituted by any simple ASCII file editor.

SUPPORTED CONTESTS

The following digital mode contests are supported:

ARRL RTTY Roundup, IDRA WPX, BARTG RTTY/AMTOR/PacTOR, EA RTTY, SP RTTY, ARI RTTY, A. VOLTA RTTY, ANARTS RTTY, NAQP RTTY, Russian RTTY, SARTG RTTY/AMTOR, CQ/DJ WW RTTY, JARTS RTTY, WAEDC RTTY.

The following CW contests are currently supported :

SAC, CQ WW, VK/ZL, ARRL DX, AA DX, CQ WPX, REF.

FURTHER INFORMATION

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REVIEW OF OH2GI-HAM SYSTEM

HISTORY

In 1984 OT Jukka Kallio, OH2GI bought his first IBM PC as a Christmas gift for his family. Although playing by the children was the primary use of the PC, Jukka thought about other possible uses somehow connected to his hobby, the ham radio. The 4.77 MHz processor, 320 KB main memory, 2 floppy disk drives and interpreting BASIC did allow development of a logging program.

This program was used first in contesting in the 1985 Scandinavian Activity Contests, both CW and SSB. Participation into the SAC contests had been one of the annual activities of our club, OH2AG, since early 70's. This logging program, unnamed for many years, was the origin of the program system now known as OH2GI-HAM SYSTEM.

During the late 80's Jukka continued developing his program into a CW contest program in step with the annual upgrades of PC with more power, more hard disk space and a real compiler.

The main test for any development was the annual club participation into the SAC CW contests. By 1988 Jukka's program was so much developed that the SAC CW contest was run entirely using his program, the PC being connected to the transceiver via a simple interface. The program operated the transceiver, helped manage pile-ups and hunt & pounce, identified duplicates and multipliers, defined QSO points, maintained the log and generated printer ready contest logs in minutes after the contest.

The program worked like a dream for the duration of the contest (27 hours) without falling apart to any mishandling.

MOVE INTO RTTY REALM

I became interested in RTTY mode in 1987 as I realized that a PC would work nicely on this mode. The first modem was a Kantronics UTU that was soon replaced with a KAM TNC. As there was not much new in conventional modes with regard to DX, I took it as my objective to reach DXCC on RTTY mode, too. RTTY contests are an easy way to develop the DXCC total.

It became obvious that to improve the contest results a proper RTTY contesting program with a logging facility would help in the contest and eliminate much of the post-contest work. At that time the known contesting programs were limited to CW contesting. I tried a few RTTY programs with logging features, but ended up with frustration as none of them seemed to stand the contesting stress or they were simply too slow for contest operation. I persuaded Jukka to move into RTTY and finally he bought a KAM TNC similar to mine for his own Christmas gift in 1991.He modified his program for RTTY and was ready to enter the 1992 ARRL RTTY RoundUp. Next he added the rules of BARTG RTTY into the program and gave me a copy for a try.

Jukka's program stood the BARTG contest with its traditional high reliability and I was pleased to obtain no. 7 position in the world. As already in SAC CW contests, way back in 1988, I walked away from the BARTG contest site with printer ready logs and summaries with only a stamp to add onto the envelope.

Finally a reliable tool for RTTY contesting was found.

The rules for other contests like EA RTTY, SARTG AMTOR, A. VOLTA, SP RTTY, ANARTS, SARTG RTTY, CQWW RTTY and JARTS were added into the program one by one and we both tested them out contest after contest.

The final benchmark came in the form of WAEDC RTTY Contest with its famous QTC traffic. The program was again updated by Jukka and a working scheme for QTC exchange was developed and tested out by both of us. I won the 3rd position in the contest. I was more than pleased with the result. Certainly the program was of a decisive advantage.

By the end of 1992 Jukka's program, now called HAMI, fully supported more RTTY contests than any other program, such special events as WAEDC RTTY and SARTG AMTOR included. These were in addition to half a dozen CW contests and running normal daily contacts.

FURTHER UPDATES AND REFINEMENTS

Mouse support

The next step in development was the adoption of mouse support to ease the operation in addition to using the function and other keys.

Ease of Operation

Ease of operation has been another goal in program design. There is no need to remember meanings of numerous F-keys as the operation proceeds smoothly with just two mouse keys most of the time.

VHF DX-Cluster support

The HAMI program was further developed to support KAM host mode, i.e. to have simultaneous access to VHF DX-Cluster whileoperating other digital modes on HF.

Accessing the VHF DX-Cluster was also enhanced to automate formation of DX spot messages as much as possible. If the DX call is still in the transmit buffer the DX-message is fully generated with call, name, country, mode. Only the last decimals of the DX frequency need to be adjusted.

With the introduction of the Spy mode the program collects DX spots even without connection to the VHF DX-Cluster. The facility is useful in fringe areas, where the nearest DX-Cluster or node is too far from the station or the DX-Cluster is too busy for sustained access. The spied DX spots are neatly arranged on the screen or filed for later viewing.

Transmission mode support

The mode selection was enhanced by adding PACTOR support just days before BARTG ran their AMTOR/PACTOR Contests in July 1994, as well as G-TOR support in case someone would invent a contest on that mode. AMTOR and CW were already implemented.

Name File

To collect a name file of worked stations, either in normal contacts and in contests was our next idea. It must have been quite a surprise to many to get a 'Hello' message by name in the contest exchange, esp. when we were operating a rather rare station like OH2AG, our club.

In RTTY contests everybody can afford being polite without jeopardizing the contest effort. Finding a name for a station is also reassuring as it confirms the received call in high probability is correct.

Due to popular demand support of AEA PK-232MBX was added. The support includes HF modes CW, RTTY, AMTOR and PACTOR and VHF Packet.

K6STI RITTY support is also included in the package, but the official release is still pending approval from K6STI. Adding new TNC support is done in an open standardized way to facilitate quick addition of any other TNC. This requires, however, good

knowledge of the command set of the subject TNC and thus is not recommended for a normal end user.

Two-TNC support
As Jukka had to acquire another TNC, the PK-232MBX, to enhance the repertoire of the supported TNC's the natural outcome was to implement Two-TNC support. Initially there were two HF screens or one HF screen and one VHF screen, but soon the program was upgraded to include a VHF screen and two HF screens provided one of the is a KAM in host mode.

SET-UP FOR A CONTEST
To run a contest starts with an initial set-up run to install the contest in question. The repertoire of close to 20 digital mode contests currently contains all known international contests.

It is also easy to generate a new, so far unknown contest. The set-up run generator contest exchanges to start with, but you are free to modify them with an ASCII editor. The generated messages are at three levels based on their length: short, medium and long. But you can establish your own meanings to various levels.

a couple of initial commands, like sh/wwv, sh/dx that are executed once connection to the DX-Cluster is established. You are free to issue connection later in the DX-Cluster screen.

I have set up many contests during the warm-up of the radio just minutes before the start and used the generated exchanges as such for the rest of the contest.

RUNNING A CONTEST
Running a contest is best done with help of mouse keys with occasional excursions to the keyboard. Those accustomed to function keys can use them instead or in parallel with the mouse keys.

The left mouse key is generally used to pick up the call sign and collect the received data into the log from the screen. The right mouse key is equal to Enter key.

Calling a station opens a new line in the log, gives information a.o.t. on whether the station has been worked before on any other band, the name if in the name file, country name, zone etc. and places the cursor onto the contest exchange field in the new log entry line. In addition a word 'NEW' blinks, if the station represents a new country multiplier on the band.

Again pointing by mouse to the received exchange(s) and clicking on them with the left key bring the data on the correct places in the log. Clicking the right key completes the contact in the log, fills in the multiplier column(s), defines QSO points and starts a new round.

The keyboard must be touched, however, when the received call is misspelled or incomplete and needs correction. Excursions on the log entry line takes place by the tab keys and confirmation is again done by Enter key or the right mouse key.

As I am right-handed, I trained myself into mouse operation by the left hand leaving the right hand free for the radio(s). But sure from ergonomics point of view it is good to have alternate methods in order to prevent fatigue.

The automated contest operation takes place on the Main Screen. If, however, there is need to conduct free-format discussion with the other station you can drop in on the alternate screen, called QSO Screen for a keyboard chat, after which you return to the Main Screen to continue the contest.

Keyboard is still needed for some other functions: Alt-commands are required to change the band, to drop in on the DX-Cluster screen, in actions targeted to DX-Cluster and in case you want to change transmission mode for some reason.

Normally when the duplicate control is on, the program refuses to call the other station or informs the other station being duplicate and continues. If the other station insists you can momentarily switch off the duplicate control to work the station again.

6. LOGGING AND POST-CONTEST PAPER-WORK

The log size is selectable between 500 to 9999 contacts in the set-up run. If, however, the log size has been defined too small it can be expanded during the contest.

The log file is in 80-column ASCII format, easy to clean up from any inaccuracies after the contest with an ASCII editor.

OH2GI-HAM SYSTEM employs a prefix file based on the current DXCC listing. There are actually two listings: DXCC list and CQ/WAEDC list. The latter list is selected for the CQWW and WAEDC contests in the set-up run.

Keeping a country list up-to-date is a moving target. Every contest brings about new, hither-to unknown prefixes that do not fit into any of the listed countries. Those unrecognized prefixes are marked with a question mark in the log for later scrutiny.

The prefix file is, however, easy to update with an ASCII editor to include the new prefixes as the lay-out of the prefix file is self-evident. This is usually done at the end of the contest. A run of the prefix pointer routine through the log brings about corrected log with points and multipliers, before the required log sheets and summaries are produced.

Other multipliers: zones, states, provinces, call areas, prefixes (the only multiplier in IDRA WPX) are identified as well. There is still one multiplier missing: the continents have to be manually tracked. Bonus points in some contests are not tracked, either.

7. NEW MODES OF CONTESTING

Club Effort

The membership of our club, OH2AG, lives in a wide area in Southern Finland. In order to ease involvement of the membership in contest activities, DX-Cluster can play an important unifying role. The members living farther away from the contest site can still contribute to the contest efforts by providing information to the main station via the DX-Cluster.

But the contributors need up-to-date knowledge, most important being what multipliers the main station has already logged. Jukka, OH2GI, automated the information transfer function to the DX-Cluster with a condensed one-screen information package sent as a file to the DX-Cluster.

The information package contains a snapshot of all multipliers per band and the points status. Using this screenful of information the contributors have it easy to follow up the development of the score as if they were on-site and can provide assistance over the network.

Naturally the same information package is available any time for the on-site operator(s) at a mouse point.

Contesting with Open Cards

Amateur radio contesting has traditionally been a secretive art. The competing stations tend to hide their own results in order to surprise their competitors with an outright winning score after the contest.

In other branches of sports the practitioners compete in the open. Usually the competitors see each others and their results and thus can adapt their strategy during the course of the competition.

Jukka and myself have done this kind of competition with open cards since Jukka implemented the transfer of information package over the DX-Cluster. Seeing the competing station's score and what he has worked on various bands motivates to reach the competitor's score or maintain the acquired lead.

Well, sometimes, when Jukka is already hundreds of contacts and millions of points away it does just the contrary. But 'the moment of truth' often brings about a change in strategy, a change in the objective.

I look forward to a day, when this kind of competition can be extended internationally. Jukka's program can be run under OS/2 WARP that in tum can access a contest reflector on the INTERNET and provide the same information package for world-wide distribution.

Two-Radio Contesting

I had an opportunity to learn and practice two-radio contesting in CQWW and JARTS RTTY Contests, autumn 1997. The Two-TNC feature facilitates this kind of operation.

OH2GI-HAM SYSTEM allows simultaneous CQing on two bands. To comply with the rules in a single-signal category some operator control is thus required.

Once a contact is established on one band, CQing or any other transmission on another band is inhibited. When the QSO is completed the new log entry gets the correct band information automatically and the transmission on the inhibited band is released.

In CQWW Contest I used a KAM in host mode (HF and VHF DX-Cluster) and a PK-232MBX (HF) in terminal mode. This event was run at my home location with somewhat limited antennas thus providing only 21 MHz for the 2nd radio and the lower bands for the main radio.

In JARTS Contest I used two KAM's, one in host mode (HF, VHF) and the other in terminal mode (HF). I was offered an opportunity to use another club's antenna farm at OH2AQ with enough towers and antennas for more flexible operation with two radios.

At both occasions the radio set-ups were 2 Drake TR-7 transceivers and one LPA.

In both contests the program system functioned without a problem. The second radio acted as a monitor for most of the time on quieter bands, on 28 and 21 MHz during day-time or on 14 MHz during night-time, while the main activity occurred on lower-frequency bands. The occasional CQ's to a seemingly dead band brought in some interesting contacts and nice surprises, while the main bands were being scanned for new contacts.

To fully utilize the two-radio operation there are, however, some other aspects to be considered: radios, band filters, antennas and last but not least convenient antenna switching arrangements.

Enhanced Single-Radio Contesting

The Two-TNC feature can also enhance single-radio operation by 'listening' the same signal with two different TNC's.

Jukka has successfully used this method with RITTY together with either KAM or PK-232MBX. His experience demonstrated that RITTY copied weak and interfered signals better than hard-wired modems, while the latter units were better with signals having arctic flutter on them or wrong shift.

My experience with KAM and PK-232MBX showed that they nicely replenished each others.

The arrangement was of great help with stations transmitting their exchange (zone or age) only once. Seeing the same exchange via two TNC's was reassuring enough, seeing a healthy exchange via one TNC, when the other TNC copied garbage, was quite reassuring. But when both TNC's copied garbage my question was, why not have the two small numbers transmitted twice in the first place? What's the hurry in an RTTY contest?

8. RELIABILITY

The built-in reliability features have contributed to problem-free operation at OH2LU, OH2AG and most recently at OH2AQ.

I have used Jukka's software for digital contest work since 1992 and I have not had a single software related incident since then. I have been lucky, too, as none of my PC's has failed in the middle of a contest. Neither before nor after 1992.

Being a tightly designed DOS program the memory requirements have been under strict control. The program does not get extra 'fat' during the course of the operation thus helping avoid problems in memory management.

An important reliability feature is the on-line back-up facility. The set-up run asks for placement of the back-up file. If possible place it on a separate physical drive from the main file.

9. CONCLUSION

The above is a brief run-down of an amateur software package developed by OT Jukka Kallio, OH2GI. The package has grown up in step with the affordability of personal computing. A number of features were not described in this review.

The enclosed sidebar describes the specifications of OH2GI-HAM SYSTEM as they stand at Version 4.4 (current at Oct. 1997).

The program should suit to persons having any of the supported TNCs, perhaps in multiples, having interest in HF digital contesting, either in single-radio or multi-radio environments, in rag-chewing on HF multiple digital modes and monitoring DX-Cluster even in fringe-area locations.

Anyone who wants to have a flavor on this excellent program may obtain a test version from the author, OH2GI. Its accompanying documentation describes the program operation and use in detail.

10. ACKNOWLEDGEMENTS

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Tapani Juhola, OH2LU

Chasing XZ1N on RTTY

. . . or How I Spent My Fall Vacation

by Don Hill, AA5AU • PO Box 625 • Belle Chasse, LA. 70037 • email: <AA5AU@bayouweb.com>

It's Friday, November 15th, 1997. I just arrived home from work with nine days of vacation ahead of me. There are two objectives to this vacation. Work XZ1N on RTTY in time to go duck hunting. And have a good duck hunt!

Checking the bands the first hours of the 16th of November there are no signs of them yet. There is nothing on the Packetcluster or any news across the Internet as to their progress. I'm taking the no news is good news approach. Twenty meters is pretty much dead here in south Louisiana. Last night I found FH/F6HWU CQing on 30 meter CW for a new one on that band. The XZ group announced, just before the trip, that 20 and 30 meters would be the bands for RTTY. I think their choice of using 30 meters would be a good one, maybe not for me, but for others is EU/NA/SA.

Mini Prop is not showing very good paths to my part of the world. Southeast Asia is the hardest part of the planet to work from here. So this is going to be a challenge.

At 0300z I hear Jacky, 3B8CF, CQing on 30 meter CW. He is 10 dB over S-9 and the loudest I've ever heard him on 30 meters. I'm thinking in my mind that 30 meters is going to be an important band to work the DXpedition. I'm using an A3WS WARC yagi for 12 and 17 meters with the 30 meter add-on kit that makes it a rotatable dipole. It is at about 55 feet and works very well on 30 meters. My other beam is an A3S with the 40 meter add-on kit at about 62 feet. I just hope it's enough antenna. I'm getting nervous. I need to go to bed and check my sunrise. But the adrenaline is flowing. This is worse than a contest!

I try to go to sleep, but I can't. I listen to 30 meters and Ray, 5R8FK, is calling CQ with a big signal on CW. Ray used to sign 7P8SR from Lesotho and was very active on RTTY. I asked him about RTTY and he said he was waiting on a computer to arrive. We had a very nice QSO and he expressed that he would be on RTTY "soon". No word on XZ yet.

I check the Web site for the DXpedition and it says that the group has arrived and should be on the air as scheduled. I go to bed.

The next morning around 1130z there is a spot for them on 20 meter CW from the USA. I check the frequency and find nothing. Then spots start coming out about two hours later on 30 and 40 meters. It's too late for the path so I can only watch the west coast USA working them. I go off and do my Saturday chores which includes going to the gun shop and picking up my repaired shotgun. Opening day of duck season is only a week away.

I start tuning again around 2200z. I work V47VJ and J87GU on 30 meters out of boredom. The SSB Sweepstakes is under way so I stay away from the phone bands. There is a spot out of EU that they are on 7050 *kHz* sideband. I take a listen but hear nothing but a lot of noise. 20 and 30 meters are also very noisy.

While listening to the V47VJ pileup, I hear a JA station. That is encouraging but the band is very noisy. I check the weather on the World Wide Web and see there are thunderstorms north of Lake Pontchartrain. At 2230z I work OX3IPA on 10101 *kHz*.

A few minutes later a spot out of EU has them on 40 meter CW. I go there, hear the pileup of EU and east coast USA/VE, but not the XZ. I go back to 30 meters, because 2300z should be my best shot to hear them on that band and it is my sunset. I find Teo, EA6BH, booming in like he is in my backyard, but no XZ. VK6RZ is calling someone over and over on 10103.4 *kHz*, but I can't find who he is calling. I check 40 again, the pileup is getting pretty big now, but I still don't hear them.

Fifteen minutes before their sunrise I finally hear them for the first time. They are on 10103 *kHz* CW working up 1. I call for about 30 minutes but do not get through. Their signal is very weak and combined with the static crashes they are next to impossible to copy. Propagation moves to the west coast USA and their signal drops off completely around the start of the 17th 0000z. At 0040z they are still on 40 meters but still no copy. Now I don't hear any more USA calling. I check 30 again and don't hear anyone calling. I go to 20 meters. Twenty is dead. I go watch TV.

At 0630z a spot from Shin, JA3AUQ, puts them on 15 meter RTTY. I go ahead and look at the frequency but it's 12:30 a.m. here so I decide to get a couple of hours of sleep before resuming the hunt.

I have no copy on them when they show up Sunday morning on 30 and 40 meter CW. But later in the evening, I finally make my first contact with them at 0008z on 30 meter CW on the 18th of November. I don't hear them on 40, so I go to bed early.

I awaken at 0900z Monday morning and I see there are several spots from EU putting them on 15 meter RTTY. Of course I take a look and of course there is nothing coming through on that band at that time of day here. It's 3 a.m. local time.

I print out new propagation data for the 18th and see where there could actually be a 15 meter long path around 1330z, but it seems to be a shot in the dark. As I look at the possibilities on paper, nothing really looks good. The sun sets there before it rises here, likewise the sun sets here before it rises in Myanmar meaning at no time are both locations in daylight at the same time. I'm not encouraged by this, but I know it is not impossible to work them on RTTY. In the evening there would be a gray line possibility since there is only a 45 minute difference between my sunset and their sunrise.

At 1030z I surprise my dad, WB9FAD, by breaking into his daily round table with his friends on 7258 *kHz*. My schedule normally doesn't allow me to get up with these early birds, but this week is different. We have a nice chat then it's off to tune some more.

XZ1N shows up on 40 meter CW around 1130z. I catch them calling CQ but they are very weak. I call them simplex but get no response, another CQ. By then a few others have also found them. We call and call but there is only a "CQ NA

de XZ1N". Two USA stations get through (including W3LPL) and they are gone. They go to 30 meters where I can actually copy them well despite their weak signal. I check 20 and it is still dead. But not all is lost.

While connected to the IK5PWJ Packetcluster via the Internet I get a spot on 3C5Z on 15 CW at 1330z. This would be a new one for me on CW. I find him but he is very weak. After an hour, his signal has peaked up to where I could call him and I get him on the first call. It is #314 current country worked on CW!

Getting back to the work at hand, I keep a vigil on the 40 and 20 meter RTTY bands but nothing is happening. I finally pull the plug around 1600z. Then I did something that is totally out of character for me. I went shopping. I went out and bought a pressure washer. Tomorrow I may even use it!

I come back to the rig in the evening and there they are on 30 meter CW and they have a very copiable signal. They are not very strong but if they had been on RTTY I think they would have been workable.. Their signal doesn't last long. They still seem to have trouble hearing NA. It's hard to tell what they are up against. But I can clearly see that lack of propagation is a major part of it. The solar flux is only 74 and the K is a whopping 12. Into the 19th they show up on 40 meter CW but again cannot hear NA and they disappear.

On Tuesday morning the 19th around 1200z they appear on 20 meter CW and about an hour later I can finally copy them. They are weak, not moving my S-meter. They are working by USA/VE numbers. Since I have XZ confirmed on 20 meter CW from an earlier DXpedition, I elect not to join the pileup but instead to just listen and watch their signal. At 1245z, they show up on 20 meter SSB as well. This is interesting. They had two stations on 15 meters at the same time for EU, they are doing the same on 20 for NA. I listen to their SSB frequency and hear nothing.

I go back to CW and at 1307z their signal is gone. I didn't hear anyone calling up the band, but the policemen on frequency made it seem like they were still there. Nothing on RTTY or SSB either. Spots have had them on 80 meter CW, but I concentrate on 20 meter RTTY hoping for a miracle. There will be none this morning. I go out and pressure wash my house (man what a chore that is!).

In the evening I start tuning about an hour before my sunset. Twenty minutes past my sunset and 25 minutes before their sunrise I catch a spot for them on 7025 *kHz* CW. They are pretty weak but the frequency is clear and they are working simplex. I call them twice and they come back to me. Forty meter CW in the log at 2326z!

I check 20 meters for RTTY, the band is dead. I tune until about 0200z on the 20th and call it a night.

I awaken to few spots on the Packetcluster. I check their signal on 20 meter CW long path and they are not readable. I check the RTTY bands. Good signals out of EU off the back of the beam. The band sounds much better. I get a feeling that conditions are better today. I check WWV and the A has fallen from 13 to 7, the K remains 2. I am optimistic even though I don't hear them longpath on CW. The evening paths have been better for me. It was during these evening paths when I got through on 30 and 40 meter CW.

I tune for an hour or so longer then go out and cut my grass, edge, and pressure wash the driveway. This pressure washer sure is a lot of fun to play with.

This evening getting out of the shower I find my self rushing to get to the radio. I feel an inner sense of urgency. I check WWV and the solar flux has climbed one point to 75, the A index is one lower at 6, the K remains low at 2. I am optimistic. At 2230z or 30 minutes before my sunset I start to tune. There is a spot for them on 40 meter CW. I don't hear them. A spot for 80 meter CW. I don't hear them there either. Twenty meters sounds nice and quiet. My S-meter lays flat. I start to get an eerie feeling that something special could happen tonight. I continue to tune.

At 2330z on the evening of 20 November with the beam due north I catch a Japanese station calling someone on 14083 *kHz*. The JA is working XZ1N! My heart jumps up to my throat. I don't hear them so I swing the beam long path. Nothing there. I hear another JA, then another. Six or seven worked one right after another. They must be working simplex. I still don't hear them. I figure they are probably beaming short path since the JA's are working them. But I keep swinging the beam back and forth. I pray that the JA's don't spot him on the Packetcluster, that could pose a problem with everyone else knowing they were there. I sit and wait, all the while swinging the beam north and south. My heart is racing.

At 2350z, with the beam long path to the south, I hear AB7AU call and work them. Now I know it must be short path. As I turn the antenna to the north, I start hearing them. They peaked in at 350 degrees and were calling CQ! I call and they come back to a 7N station. After they work the Japanese station I call again and they come back but I don't see my call just "AU 599 599". I call again with a signal report and ask them to please confirm my call. They came back immediately and I saw my call come across the screen once perfectly. It was good enough for me! In the log at 2353z.

Just then the phone rings and it's my friend DJ. I scream into the phone "I JUST WORKED THEM! I JUST WORKED THEM!". She must have thought I was a bumbling idiot. But she understands how important it was to me to make this RTTY contact. She had caught me in that euphoric state of mind having just hunted down a new country after stalking it nearly 5 days. It's this exhilaration that drives us DXers. It may be short-lived, but there is no other feeling like it. Success.

I put out the spot and let the whole world know via the Packetcluster. Back down to reality, I lose copy on them at 0006z. That was a short window, but then again, I knew it probably would be. At 0027z I hear them again and watch them work KE6XJ split up about 2 *kHz*. They are stronger and better copy this time around, but they fade fast at 0035z. At 0108z I start hearing them again but cannot copy. I keeping hearing them until 0130z but with no real copy. The west coast of NA is having their shot.

I pour a well deserved rum and coke and start tuning again. I think to myself that I may even sleep in tomorrow morning. Naw, probably not. Would be nice to get a back up on 40 meter RTTY. Who knows? Oh yeah, and I almost forgot about that duck hunting trip I need to get ready for. Or I could always pressure wash the back porch.

73, Don AA5U

The 1997 W5 DX Bash

by Wayne Matlock, K7WM (Ex: WA6VZI)
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Occasionally, we have the opportunity to enjoy the camaraderie of Amateur Radio other than the operating from our "shack". Dayton is one such occurrence, as is Visalia, HamCom, and the other various get-togethers which occur at various times around the world. The W5 DX BASH hosted by Bryan Edwards (W5KFT) at his beautiful ranch NE of Austin, Texas more than qualifies as one not to miss. The ranch itself overlooks and has as it backyard on Lake Buchanan. The ranch is covered with oak trees, many varieties of cactus in bloom; and is overrun with deer, geese, and other wildlife. And of course, Leonard, a huge Red Brangus bull which "rules the roost" and pretty much goes and does what he wants to do. (Which at the time we were there was chasing the four legged female version and would get very upset when his advances were rebuked.)

Bryan issues the invitation to the DX BASH worded as follows, "This is an open invitation to all DXers, True Believers, QRPers, DX Cluster users, Antenna Nuts, Big Guns and Little Pistols to come and join us. Bring your *xyl's*. . . the gals had a great time together last year. Read info below about special tours, trips. This is a FUN weekend. Enuf said".

The DX BASH itself is very informal with quests coming and going at pretty much all hours of the day and night. "Scheduled" events are planned for Saturday and Sunday and attendees started showing up on Friday evening checking in and visiting with host Bryan and others who had showed up early. Bryan makes his contest station available if you get the urge to try out his super station with lots of towers and antennas along with multiple radios and amps. Over the weekend, numerous operators tried their hand at RTTY-CW-SSB and made some very nice contacts from the station.

The "shack" is equipped with 3 beds, kitchenette, a/c, restroom, plus all the radios, amps, and fans.. Plans are in the works to enlarge it and stacks of antennas were being prepared for mounting while I was there. George (K5TR) is the doer at the station and keeps it in super shape. With what Bryan has planned for the station down the road, great things will be forthcoming from W5KFT.

This year, the big twice-a-year flea market was going on up in Belton on Saturday morning. Many of the early arrivals were sitting around counting their money and left very early on Saturday morning to get there before all the goodies were gone. They started trickling back around noon on Saturday, so events were shuffled to accommodate the bargain hunters. The ones who didn't go to the flea market had to suffer by sitting around under huge oak trees eating all the Saturday morning goodies and most of the Saturday lunch food while visiting with old friends and making new ones. (Bryan held enough food back to feed the flea marketeers).

It seemed that whatever question you might have or dream up, there was a true "been there-done that" answer available. Unbelievable the questions that can be fulfilled by sitting around talking. Everything from e-mail, DX techniques, (sneaky)tricks, radios, DXpeditions, antennas, towers, or whatever, you could get an answer for or contribute to the discussion. This went on the entire weekend and if you have lots of questions, you really needed a notebook to record all the ideas which come forth.

The "scheduled" events started around 1pm on Saturday with a discussion on DSP filters and a "non-technical" test performed by several operators (you use the one that sounds the best to you). The discussions opened up numerous areas for exploration. The old adage of sometimes you don't get what you pay for or think you're getting still holds true. The DSP seminar was followed by Dan, N5AR, with a presentation on buried and elevated beverages antennas and fractal antennas. Now I know everybody knows about beverage antennas. But for the less informed like myself, I learned a fractal antenna is a vertical which is not really vertical, a dipole which is not really horizontal, a vee which is not really a vee, and a yagi with not really straight elements. I said to myself, self, wait a minute, this is not the way its supposed to be. Dan then started showing documentation, proof, and radiation patterns of these fractal antennas which dimmed a jaundiced eye. At the conclusion of an excellent presentation, Dan handed out lots of design drawings of various beverage and fractal antennas along with an enormous yagi with a 57' boom. So who knows, there might be a vee with a lower horizontal section with bent vee elements to the horizontal here at the shack. Very interesting and eye opening.

After stretching and coffee gathering, Dick (K5IU) gave a presentation on elevated verticals and radials. The discussions, documentation, tests, etc., sure ruined a lot of notions I had about verticals (and radials). I now know that verticals don't have to be as high or radials as long to get a lot better results than obtained in the past. Dick also handed out lots of test info and design drawings which can be put to good use at any station. Dick is also the owner of RTS (Rotating Tower Systems) and was available under the Oak trees to discuss any configuration of towers and antennas you could dream up. (a person can dream can't they?) When I left, I had a station designed with 5 rotating towers with 5 over 5 over 5 on each band. Dream on you say, wait until my *xyl's* inheritance comes in. Of course, that's what she says also—"dream on."

The concluding speaker/presenter on Saturday was Brad (KV5V) who gave a presentation on his expedition to Nepal. Only a few DX contacts were made as the host wanted to get packet going. Lots of pictures of the country were presented and Brad spoke of most everybody having to wear masks due to the smog generated by the diesel generators. Is there no escape from it?

Saturday evening was spent either going to a dutch treat bar-b-que dinner at Big John's or just sitting on the porch watching the sun go down while the monarch butterflies and geese were doing what they do. Or for the more adventurous, walking around the lake looking for arrowheads or turtle shells.

Sunday morning no "scheduled" events were planned so there was lots of time visiting and enjoying coffee and donuts. As many people had come a good distance, good-byes and early departures thinned out the crowd by early afternoon. By early evening only the "locals", Ron AB5KD, oops, K5DJ, and George K5TR, were left to close up the day.

With the wonderful hospitality of Bryan and his wife Barbara, coupled with the scenic location and delightful things to do, next years 1997 DX BASH is for sure marked on my calendar. Perhaps it should be marked on yours.

73, de Wayne K7WM (Ex-WA6VZI)

DX News

The latest digi-doings from around the globe

by Don Hill, AA5AU PO Box 625, Belle Chasse, LA. 70037

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January 1997 VK0IR Heard Island DXpedition

At press time, the Heard Island DXpedition was right on schedule. They will be using the callsign VK0IR. If all works out, this DXpedition will be like none other. They are using the most technically advanced transportation and communications available on this trip. All DX eyes will be upon them. Check out their Web site...

Home page is: *http://www.ccnet.com/~cordell/HI/*

The tentative schedule is as follows:

Jan 3 Leave Reunion
Jan 8-9 Crozet
Jan 12 Arrive Heard Island
Jan. 13-27 Operations on Heard Island
Jan 28 Leave Heard Island
Jan 30 Kerguelen
Feb. 5 Return Reunion Island

1997 XZ1N DXpedition

The biggest news of all of the year 1997 happened toward the end of November. The solar flux climbed from 74 on the 22nd to 100 at the end of the 24th. XZ1N showed up as promised on 14083 *khz* just after the end of the CQWW CW Contest to work North America at that same time. The result was a tremendous opening that brought on a RTTY pileup from NA that had not been seen in years.

For many operators, it was not a "new one" technically. The only other confirmed contacts with XZ on RTTY had been with XY0RR, and many in the pileup had that card in the fist. Because of the questioning of the XY0RR effort, this trip brought out EVERYONE.

That Sunday night in NA, their signal hung in there for many hours. It was a time in RTTY DX history that should be remembered. It came at a time when condx were at the their lowest, then somehow, someway, the 20 meter band opened up. The next morning in NA, the East Coast had another chance on the long path. Overall, 639 RTTY contacts were made with most of the activity being on 15 meters to EU.

The XZ1N DXprediton should be commended for more ways that just their RTTY performance. They worked hard over several years to make this happen. The opening of Myanmar to Amateur Radio is a triumph to all that participated.

Digital Doings

Angola, D2. Alex, PA3DZN, operating as D25L has been a nice surprise on 20 meter RTTY. QSL via PA3DMH. *I made a contact with him on 12 meter CW on 1 Dec, the bands are coming back!*

Greenland, OX. Bendt, OX3RO, is active on 20 meters around 1500z using an FT101ZD. QSL is direct only at: Bendt Lothsen, PO Box 1416, Nuuk, 3900, Greenland.

Malawi, 7Q. 7Q7EH prefers 15 meter RTTY, but also can be found on 20 meters. QSL via AA9HD.

Marion Island, ZS8. Chris, ZS8IR, has been missing from the RTTY screen. His QSL cards have been missing from the mailboxes. Chris explains "Sorry about the cards, but the printers delayed like you won't believe. They should be going out VERY soon. My manager said that he hopes to be up to date with all cards that have been received direct in the next month or 6 weeks." Thanks to Jim, WA4UBD for this info.

Nauru, C2. A DXpedition was conducted in Nauru in late November '96 using the callsign C21BH to celebrate the 50th birthday of Martti Laine, OH2BH. It is doubtful that they got Martti on the RTTY keys but there were numerous sightings of them on RTTY. QSL direct to Martti's new address in Finland at: Martti J. Laine, OH2BH, Nuottaniementie 3D20, 02230 Espoo, Finland.

Nepal, 9N. Brad, KV5V, reports he hopes to return to Nepal in May '97 after Dayton and will do more RTTY and CW from 9N1RHM.

Pratas Island, BV9P. The DXNS reports Bolon, BV5AF, President of CTARL and TAMSAT, has plans for an operation in late March 1997. RTTY was included in the last trip there. Keep your eyes open.

Trinidade & Martin Vaz Island, PY0T & PY0M. Prior to last year's ZV0MB DXpediton to Martin Vaz, I asked Ari, PT2BW, about the possibility of RTTY. He checked with one of the operators Paul, PT2NP, and RTTY was not included. However, he did forward my message to Paul and later I received another message from Ari that ABRA (DX Brazilian Assn.) plans on a larger DXpedition to Martin Vaz in 1997 to include RTTY, 6 meters, and satellite. No dates have been mentioned yet.

Tunisia, 3V. Eddie, W6/G0AZT, put on a splendid RTTY operation from this rare north African nation. 3V had not been active on RTTY since June 1995. Thanks Eddie! QSL to the regular route: Eddie Scheider, PO BOX 5194, Richmond, CA 94805.

Vietnam, 3W. 3W5FM has started up on RTTY again. It's Nikolay, UA0FM. QSL to his daughter's address: Nataly Stchelokov, PO Box 66, Vladimir 600011, Russia.

Wallis Island, FW. Dieter, DJ2EH, activated Wallis Island on RTTY in late October after the CQWW SSB contest using the call FW2EH. QSL route is via DJ2EH Dieter Hornburger, Semmelgasse 3, D-96317 Kronach, Germany.

1997 New Orleans International DX Convention

The Board of Directors of the New Orleans International DX Convention have announced that the dates of the 6th annual event will be August 22 & 23, 1997 at the Royal Sonesta Hotel on Bourbon Street in the historic and colorful French Quarter. Mark your calendars and make your plans!

See you in the VK0IR pileup, 73 de Don AA5AU

Other Digital Modes

CCW -- 35Khz up on all bands - plus/minus 1 Khz

by Peter Lumb, G3IRM
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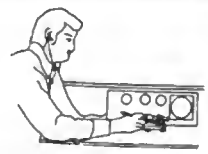


Operating schedules:
AK0B - Low power beacon on 7030 intermittently
but frequency may be changed
VE3RAT - Low power beacon believed to operate continuously on 18.101
G3IRM - Tuesdays at 1900z on 10135 - Thursdays at 1900z on 7035 - Saturdays and Sundays at 1900z on 14035.
VE3OXX - Sundays at 2000z on 7033
W6HDO - Thursdays at 0500z on 7035 and at 1830z on 14035.
W6HDO or WB6RIJ on Saturdays and Sundays at 1900z on 14035.

These schedules are the latest I have - if you would like to try for a CCW contact I suggest you contact one of the above stations to arrange a date and time.

The BMK-Multy

This month I want to write about what is probably one of the best and most comprehensive amateur communications programs available. The BMK-Multy is not shareware and can be obtained from the author - BMK Communications Ltd., 2 Beacon Close, Seaford, East Sussex BN25 2JZ, England.

The program has recently been advertised in QST as being available from Spheretron/Schnedler Systems, P.O. Box 5964, Asheville, NC 28813, U.S.A.

Although this column only deals with CW I must mention that the program can be obtained in many versions. Here is a complete list:

IBM PC BMK-Multy (all eight modes)
Amtor
Amtor and Pactor
RTTY
Amtor, RTTY and CW
FAX (receive only)
SSTV (receive only)
Logger (not supplied alone)
Tuner (as an extra)

Packet radio is not supported.

The programs require an IBM PC or compatible and MS-DOS version 2.1 or higher. FAX and SSTV require a graphics adaptor, all other modes use text screens. A single RS232 port is needed (COM1 to COM4). As usual fast PC's are to be preferred but most modes will work on a 4.77 Mhz XT model. The programs are being updated and improved all the time though many revisions only contain minor improvements. Once the program has been bought extra modules can be added by returning the disk with an additional fee. Revisions can be obtained by returning the disk with a small upgrade fee. The owner's call sign is embedded in the program when bought so it cannot be used by anyone else.

To use the program a terminal unit is required and, although there are at least two units specially designed for use with BMK-Multy many others can be used. One of the nice points about the program is that provision is made to change the connections made to the RS232 port. The default pins for cw are PTT - RTS, TD - DTR and RD - DCD. These are the same defaults as for RTTY/Amtor. There is a default .CTL file and special control files can be written for individual modes. Instructions PINR, PINT and PINP can be used to change the default CW pins if needed avoiding rewiring. One of the terminal units is available from BARTG and is called the Multyterm.It is also possible to order just the circuit board and/or a ready drilled and lettered case. Another good terminal unit has been described by G3IQI in the BARTG magazine DATACOM and in now in its ninth revision.

The program itself is very comprehensive. Some would say it is too comprehensive but if it is necessary to cater for all tastes then this is inevitable. The basic screen layout is the same for all modes and changing from one to another is simply a matter of pressing <ESC> and entering one letter for an immediate changeover. I cannot go into detail in describing the screen layout but it includes a status line with callsigns, mode selected, transmit and receive reverse, logging and printing. There is, of course, a clock. A second status line includes other data and a simple tuning indicator. Transmitted text, transmit buffer and received text screens are all there and the size of the screens allocated to transmit and receive can be changed.

There is a whole collection of function keys which are roughly the same for all modes though some keys do change as the mode is changed. Text can be captured to a file and there is an automatic call sign capture feature. If a valid amateur call sign is received following either CQ or DE the call is automatically printed on the screen and saved. It can then be used, again automatically, in contacts and it can be locked, deleted or amended. This has been found to be very useful in contests as messages can be prepared in advance so that, when sent, they include the call sign as well as predefined reports. An automatic advancing QSO number is also provided. I have arranged the function keys so that I have only to press three keys in order for a complete contest contact. Two further keys can be used for repeats and updating the serial number. Some other features of the program include a transmit word mode so that text can be typed and sent when <SPACE> or <ENTER> is pressed, a log file which opens when the program starts, time stamping, frequency logging and retrospective logging. The log file can be viewed and files can be transmitted. In fact it is difficult to find any feature which has not been included

Coming now to the features for cw the first thing to mention is that there are three function keys for receive, F1 for slow speeds, F2 for fast and F3 being unique in that it does not start to print until a valid cw signal is received but anything received during the testing period is retained and printed once validity has been established. A wide range of automatic speed tracking is provided. As in other modes both received and transmitted text can be written to a log file. Transmit is selected with F4 or for break-in operation F5. Another nice feature of the program is a transmit delay which is not usually found in cw programs. After asserting PTT the program waits for about 200 ms to allow a linear to switch over. However, this does not apply to the break-in mode. Memory loops can be sent and the program can be used as a training aid. One final point to mention is a CWDELAY. The author explains that, when a transmitter is keyed on and off, a few milliseconds can be lost from each dot or dash if the key down delay is longer than the key up delay. This becomes more noticeable as the speed is increased. The CWDELAY instruction will extend all dots and dashes as required. He also states that experience has shown that the readability of fast cw can be improved if the length of a trailing dash is increased. CWPAD is included for this purpose.

This short summary cannot give all information about the program but I think I have covered the points which morse operators would like to know. The programs include a very comprehensive manual on the disk and you get the sections of the manual for the modules you have ordered. As I said in the opening paragraph this is one of the best, if not the best, amateur communications programs available.

CLOVER MBOs-USA

by Joust ZS5S
Box 127, Howick 3290

AF5D.#SAT.TX.USA.NA - Joe - (W)
3630 3633 7065 7106.5 10135 10144.5 14110 14116

K4CJX.#MIDTN.TN.USA.NA - Steve - (x) steve.waterman@nashville.com - (W)
3630 3633 7066 7068 7106.5 10144.5
14110 14116 21093.5

K5VMX.#SETX.TX.USA.NA - Bob - (W) 7065 7066 7106.5
0300-1200: 3630 3633
1200-0300: 14100 14110 14116 18105 21093.5

KC5LT.#SOCA.CA.USA.NA - Allan - 3630 7067 10135 - (W)

KQ4ET.#VABEACH.VA.USA.NA - Joel - Virginia Beach - (W)(NTS only)
3628 3630 7066 7067 7068 10134 10137 14110 14114 14116

N0IA.#SONEV.NV.USA.NA - Bud - Las Vegas - budn0ia@aol.com - (W)
7067 7069 10134 10135 14116
0200-1300: 3630 7066 7068
1300-0200: 14067 14110 14116 18105 21067 21069

N1NNM.#ENC.NC.USA.NA - Luke - Millcreek - (V)(W)
(X) n1nnm@coastalnet.com - 7066 7068
0000-1200: 3630 3633 7106.5 - 1200-2400: 10144.5 14110 14116

N5TC.#STEX.TX.USA.NA - Tom - 3628 7066 7067 7078 10135 10136 14078 18106 (W)

N6IYA.#CENCA.CA.USA.NA - John - H24: 7064 7065 7066 7067 7068 7069
Day: 14064 14065 14066 14067 14068 14069 - (R)

NZ2T.#DFW.TX.USA.NA - Bob - ? - (W) < expected soon

W0RLI.OR.USA.NA - Hank - hank_oredson@mentorg.com - (R)
on 2 radio's: 7065 and
(B) due E: 14100 14110 14111 14112 14112.5 14113 14113.5 14114 14114.5

W2NRE.#ENY.NY.USA.NA - Warren - (X) 76264.3107@compuserve.com - (W)
3630 3633 3636 7066 7068 7106.5 10135 10136 10141 10144.5
14100 14110 14116 18106 21066 -

W4NPX.#CVA.VA.USA.NA - Bob - (X) 73522.1037@compuserve.com - (W)
3630 3633 7066 7068 7106.5 10135 10136 10144.5 14066 14068
21066 28130.13 -

W7IJ.#WWA.WA.USA.NA - Bill - 71736.1220@compuserve.com - (W)
3630 7066 10135 14066

W9MR.#SEIL.IL.USA.NA - Ken - 3628 3630 3633 7066 7068 7106.5
10135 10136 10144.5 14110 14116

WA1URA.IN.USA.NA - Frank - (X) fnmoore@cris.com - (W)
3625 3630 3633 7066 7068 7106.5 10136 10144.5
14066 14068 14110 14116 21066 21068

WA2MFY.NJ.USA.NA - Pete - 3610 7065 7069 10135 10136 10141.5 (O)
14065 14066 14067 14072 14078 18100 21065 21070 24925 28084

WA7SJN.#WWA.WA.USA.NA - Bill - Kalama, nr Portland OR - 7103.5 (R)

WA9WCN.IN.USA.NA - Bob - 70272.3212@compuserve.com - (W)
H24: 7103.5 7106.5
2300-1100: 3630 3633
1100-2300: 10144.5 14100 14110 14113.5 21093.5

WB1DSW.NH.USA.NA - Herb - 2200-1400: 7066 1400-2200: 14067 (R)
beam WSW

WB8NWQ.#CIN.OH.USA.NA - Vince - 3630 7066 7067 7068 10135 14110 14116

WS7I.#EWA.WA.USA.NA - 0100-0630: 7064 - (R)

WX4J.#SWITZ.FL.USA.NA - Earl - 3628 3630 7066 7068 14110 14116

ZF1GC.#GC.CYM.CAR.NA - Frank - 14066 21066 - fhgs@candw.ky

This bulletin is updated continuously and distributed monthly. Please send additional info and changes to ZS5S @ ZS5S.ZAF.AF
e-mail: zs5s@iafrica.com

1st CLOVER Jamboree

A Special Announcement

What is it?
The Clover Jamboree is an event to stimulate the usage of Clover as well as meet new people who are using it! The Jamboree promotes as many contacts as possible on all HF bands. It is not a contest, so everyone will be a winner!

When is it?
0000z 25 January 1997 thru 2400z 26 January 1997

How do I participate?
Simple, work as many Clover stations on all HF bands!

How do I report my participation?
1. For each contact, record:
   Callsign, Date, Time, Freq., Power, S/N of station worked, Phase of station worked.
2. Send a list of your contacts to masa@rack.improvers.fi, or to a MBO (which we will specify later).
3. Of course, send any comments that you might like to make
4. Send anything to the IDRA reflector about the event.

What frequencies should I use?
We want Clover stations to spread out, but suggested starting frequencies are:
28065+-
24920+-
21065+-
18100+-
14065+-
10130+-
7035 +- or 7080+- (for stateside ops)
3580+-

Any other suggestions?
Yes! First of all, when working someone, try QSY'ing to another band. We want to hear clover signals everywhere! Second of all, send QSLs for all of your contacts. Mark on the QSL card "CLOVER JAMBOREE" in big letters.

Where will I see the results?
We will publish some results in the May Digital Journal, and, of course, on the DJ webpage.

Confirming your Contact

by Eddie Schneider, W6/G0AZT

There have been many articles written about QSLing practices, recommendations and "gentlemen's" agreements and I am sure that a lot more can and will be written on this subject!

Ron, Ex:AB5KD now K5DJ, asked me to write an article on how I handle QSL requests, so here goes.

What appears below is MY modis operandi, regarding the receipt and sending of QSL cards for DXpeditions that I have been involved in.

I have operated from VP5,V2,VP2M,C6A,VP9,P4,8R,ZF,TY and 3V. I also handle cards for the September,1995 VK9LZ,VK9LX,and VK9NM (Lord Howe) DXpediton.

DIRECT ONLY

To receive a card for any trip that I personally make, is quite simple. You send your request direct to: PO BOX 5194,RICHMOND, CA.USA, enclosing a Self Addressed Stamped Envelope (SASE), or a Self Addressed Envelope(SAE) with enough return postage, in the form of an International Reply Coupon (IRC) or a 'green stamp'.

If I have to supply an envelope and address it, your request goes to the bottom of the pile. If neither of these forms of return postage are available, I will accept REAL postage stamps from the requester's country or any other country for that matter. By real, I mean stamps that are either used, (postmarked) OR mint (never been postmarked and still have the glue on the reverse side). Stamps that have a postmark AND glue on the back are worthless to me.

If you follow the above criteria, you will have your confirmation back very quickly. I very much appreciate the fact that waiting and waiting for QSL cards, can become frustrating, therefore I pride myself in answering your requests as promptly as possible.

So rapidly in fact, that I have been christened "fast Eddie" by some, who almost received their cards before the QSO had ended, hi.

NO BUREAU

Please do not send cards via your bureau to any of the countries listed above. Bureau cards cannot be processed, because I am not a member of any of the National Radio Societies. i.e. RSGB, ARRL. I tried to respond to VP5/G0AZT(1988) cards sent to the G0 bureau manager, who airmailed them to me in the USA. That turned out to be extremely expensive and I had to provide an envelope, write the sender's address and pay the postage back to the sender.

I am sure that there are many, many QSL cards sitting in bureaus gathering dust or simply thrown away by the respective bureau managers.

Other than a few generous donations from a few "I need that one" DX chasers, funding for all my trips has come out of my own pocket. When I operate from these various countries, 90 percent of my time is spent on the air. The other 10 percent is for eating, sleeping and the occasional Bacardi and coke. Sightseeing is not a priority. I like to operate and enjoy seeing familiar and not so familiar callsigns slide across the screen.

My travel agent thinks I am crazy and she's probably right. Who in their right mind, goes to exotic islands and sits in front a computer monitor for hours, sometimes in non-air conditioned rooms, bashing away at a keyboard, listening to diddles and trying to decipher alphabet-soup?

QSL CARDS 1

Since 1988, I have seen a great change in what folks write on their cards. In days of old, when knights were bold, you'd get a comment or two like, thanks for the new one, good/bad signal, etc. Nowadays, generally it appears to be too much trouble to even sign one's name on the card. If I did not sign your card, the DXCC desk would probably not accept it, so maybe I'll do that in future. Lets get some personality back into QSL cards! I really do read everything on everyone's card and enjoy doing it.

QSL CARDS 2

In my opinion, computer generated labels are a pain. I know I do ot get the volume of cards some big DX trips get, but labels with 2, 3 or 4 different contacts on different bands, all on one QSL card, really does make life difficult, even if the logs are computerized. Do I print labels for every contact made in the hope that I receive requests for them all? For our P40RY contest effort in 1992, that would be 2222 labels. What a waste. Do I print labels only for cards received say over a period of three weeks and mail them all out together? My "fast Eddie" reputation would go down the tubes very quickly.
I much prefer one card for each contact for it is easier to check the logs, process quickly and you get back a separate card for each contact. I like the personal touch, therefore my cards are hand written and signed by me.

One callsign, one envelope

Do not send requests for more than ONE callsign in the same envelope. That just HAS to be a real pain for any QSL manager. Put the boot on the other foot and think how much extra work is involved in searching through two or three different logs, whether they are computerized or not. Time consuming and not really very considerate, is it? My policy is; as many cards as you like, for one callsign, in the same envelope. More than one callsign request also goes way down to the bottom of the pile.

Financial assistance

Most small DXpeditions are funded solely by the operator(s). A small token of appreciation, in the form of an extra postage stamp, IRC or GS is always appreciated. After all, most of you added a new country to your DXCC count, thanks to the adventurous" nature of those operators.

Just think, if every contact made from 3V, produced an extra IRC or GS, I could think about buying two wheels of a BMW or more seriously, take a trip to one of the top "Most Wanted" countries on RTTY!

Before my e-mail box gets over-loaded, let me explain that I am not demanding assistance in order for you to receive a confirmation from any country I have been to. However, just sit back and think how much it costs some of these DXpeditions to reach those out of the way places, believe me, it is not cheap!

See you all from a new country in the near future, el Hamed Allah.

73 and DX

Eddie, G0AZT

Across the Pond

A look at the *digital-doings* of our European neighbors

by Neal Campbell, AB4MJ/ON9CNC • 10817 Ann Davis Dr. • Fredericksburg, VA 22401

In many parts of the world, Christmas is a time of celebration and exchanging of presents. I hope that you had a very restful and safe holiday season and are prepared for more digital activity in 1997!

This year the present that I was most looking forward this year was the Timewave DSP 599zx, which is their top of the line product.

This month, we will examine the product features of the Timewave DSP 599zx, and I will compare my initial impressions of this powerful processor versus the MFJ 784 tunable DSP filter.

What is a DSP filter?

In case you are not yet an expert on DSP (Digital Signal Processing), you should go back a few issues of the Digital Journal and read the excellent series on this fascinating branch of computer technology written by Paul, W4ZB.

In a nutshell, DSP is a specialized processor that is built to process analog signals, like audio waveforms for instance. Most DSP products have a process where the analog signal is somehow converted into numbers, fed the DSP processor where it is manipulated, then converted back to analog.

If you have ever wondered how music comes from a CD player, it is due to DSP. When your favorite recording artist records an album, the audio from the instruments, microphones, etc., is converted to numbers by a product called a DAC (digital to analog converter). These numbers are written on the CD which you purchase at your record store. When you take the CD home and play it, the CD player converts these numbers back to analog (sound) and it is fed into your stereo.

If you use a handy disk Walkman which has bass boost, for instance, this is performed inside the CD player on the numbers, before it is converted back to sound.

In world of amateur radio, DSP filters are used for eliminating noise or adjacent signals in the audio path. Many of the new transceivers from the major manufacturers are putting DSP technology inside the rigs. Some are including them in the IF sections so that sophisticated filtering can occur before the AGC circuits, giving much better selectivity.

Why would I need a DSP filter?

That is a great question, and it might be that you do not need one!

My shack includes the Yaesu FT1000D with all filters available, plus the HAL P-38 card which is a DSP-based product. The other modem I use regularly is RITTY by K6STI, which is a full implementation of a state of the art RTTY modem using a Soundblaster card. Do I need a DSP audio filter?

The answer, like most things, is yes and no!

I do not need it on digital modes if I am happy with digging out 90% of the signals that are possibly copy-able. During normal ragchewing sessions in moderately clear band conditions, the answer is a definite NO! During contests, big pile-ups, etc., I prefer to have a good DSP audio filter in my arsenal of weapons!
I used the MFJ 784 filter quite a bit during the 1997 ARRL RTTY Roundup to copy signals that were completely unreadable otherwise. When stations started crowding in beyond comfort, the MFJ was able to copy signals that were hardly distinguishable as a RTTY signal without it.

The answer is a definite yes if:

- you own a rig where a 250Hz filter is not selectable for RTTY
- you want to win contests
- you are not using a DSP-based modem.

Of course, occasionally, some of us wander to non-digital modes (like SSB) and things like an automatic notch filter (even double signal notch filters) are so handy that you wonder how you lived without them.

On CW, DSP filters can very effectively filter out unwanted signals making copy much less fatiguing.

If you have a rig which already boasts state of the art DSP processing capabilities, you will not need an out-board DSP filter.

My History with DSP Filters

I have played around with DSP filters for a long while.

In 1992 I bought a auto-notch outboard filter to use on SSB. The filter , a Magic Notch, cost about $200, and went between the speaker and the rig. It had a simple bypass switch and was very effective in making all those people who tune their amps on top of Dxpeditions disappear.

Over time, however, I became unhappy with the usability of the product. The main problem was that the unit was so small that it would not stay anchored on my desk, so when I stood up wearing my headphones it would cause the filter to flop all over the desk. On CW it would filter out any station that was in its bandpass, thinking it was a ham tuning up. On digital modes, it would kill the copy of any mode.

So, since I was more involved with digital modes than SSB, and this unit was not usable on anything other than SSB, I put it in the drawer, and forgot about it.

Two years ago, I saw a review of the MFJ 784 and decided that it was a great way to get back into the DSP filter market. The thing that I was most curious about was the many digital modes that the unit could filter. It has preset filters for SSB, AM, CW, packet, Amtor, Pactor, RTTY, SSTV, etc. The MFJ filter cost $250, which is an amazing comparison to what similar money could buy within a span of 2-3 years!

I used the MFJ 784 for a while, and found that it is a very tight filter. On RTTY it is so tight that you cannot have the filter on-line while tuning. The filter is so sharp that if the signal is not perfectly tuned, it isn't present!

I owned the original model of the MFJ 784, and the reasons

I wanted to move to another filter were again ergonomic rather than functional.

The first MFJ DSP filter had the headphone jack on the rear of the box, and it was a real pain to reach back to unplug the headphones when you wanted to use the speaker. While the headphones were plugged into the jack, no audio came out of the speaker. Later versions of the MFJ filter have a speaker switch so you can leave the headphones plugged in all the time and switch the speaker off, but I did not have this model.

Most critical, the MFJ 784 does not have a diode protecting it from applying the wrong polarity of 12 volts to it. Why do manufacturers continue to use different polarities, and not protect their units from the wrong one? When I moved to Belgium, I accidentally plugged in the power plug for my KAM into the MFJ DSP filter, and it blew it up! I had to order a new DSP processor from MFJ to fix the problem, and I have been paranoid about using it since then!

There are programmable settings on the MFJ, but I was not able to remember for what I had set them, so I never used them.

I was at a local ham store in October and had a brief demonstration of the Timewave DSP 599zx, and I was immediately sold on its user-friendliness! I told my wife that Santa had just found the answer to my Christmas gift!

Jumping on the Timewave

Physically, the Timewave DSP 599zx is about the size and weight of my Kantronics KAM. From a construction perspective, it is very professional in appearance, with high quality black-mat finish and a good feel to all of the buttons and knobs.

It sells for approximately $350 in the States and the equivalent of about $550 in Belgium (so you can judge what it might cost in your country).

It comes with a very complete manual (60+ pages) that gives a quick introduction plus detailed instructions on using this sophisticated box.

The front panel includes:

- a gain control for speaker output
- two multi-function controls for selecting options
- pushbutton to select the mode (voice, cw, data)
- a push button to activate the speaker (or deactivate it)
- a bypass push button to bypass any dsp processing of the signal
- a AGC push button, to try to maintain constant signal output when a tuned signal is fading
- a random push button to try and eliminate random background noise
- several push buttons that select alternative functions
- a LCD display that tells you what mode you are in, what the center frequency and bandpass you have selected, whether the speaker is active, etc.

The rear panel includes:

- a power jack
- a 9-pin RS232 output jack to connect to your computer
- 2 8 pin DIN jacks for connecting to multiple radios, etc.
- a bank of female RCA plugs for PTT input, audio input, line output, speaker output
- a headphone jack.

Features for the Phone fanatic

If you like to use a microphone as much as a computer, the DSP 599zx has an impressive set of features. It has multi-tone automatic notch filters, plus you can activate a manual notch filter in case the DSP processor is not doing as good a job as you would like.

The DSP 599zx works for SSB, FM, AM and PM modes.

The random noise reduction mode can eliminate a lot of the tiresome band noise that occurs on lower bands, and is very useful for satellite operators.

The automatic multi-frequency notch filter is quite effective in removing hams tuning their amps and rigs.

Since you can see what the low and high pass settings are on the LCD screen, it is easy to tune out annoying stations that are too close for comfort. Timewave recommends initially setting the lowpass to 300 Hz and the high pass to 2.7 kHz, and adjusting them as QRM dictates. I find that I leave the FT1000D 2.4kHz filter on and use the DSP 599zx filter. When I drop below a total bandwidth of 2.0 kHz, I then cut on the 2.0 kHz filter on the FT1000D.

In practice, I use the DSP 599zx for bandpass correction, and the IF shift on the FT1000D for optimal usage. I want to stress that I am only just beginning to explore the Timewave, so any mention of current operating mode might be out of date by the publication date of this issue!

When using AM, you might want to filter out any power noise that could be leaking into your receiver. There is a setting to specify whether you use 50 Hz or 60 Hz, so that in AM mode you can activate line noise filtering.

Keyed up about CW Filtering

As I am trying to be more active on CW, it has been interesting to see what the DSP 599zx could do on this first digital mode.

Besides having the random noise removal feature, along with the automatic gain control that is available for every mode, there are some very interesting features for the challenging CW pounder.

You can set the center frequency for the CW filter with the twist of a knob. Since the LCD panel shows you what you are doing, it is quite easy to set the Timewave to match the beat frequency of your rig.. With a twist of the other knob, you can set the bandwidth as tightly as you wish. The DSP 599zx allows a bandwidth of 10 to 600 Hz. While I am not so comfortable copying CW yet, I can barely tell that it is a CQ signal when using the 10 Hz setting, but maybe more experienced operators can. It is easy to pick the code out as tight as 60 Hz though.

You can use the manual notch filter while in CW mode, which has come in handy.

By pressing the Tone push button, the DSP 599zx emits a tone to allow you to zero beat the incoming CW signal with the filter.

One of the major complaints you normally hear about CW

operators burning in a new rig concerns the lack of CW pitch shift in some rigs (or they do not go as high or low as the specific operator wishes). If your rig does not provide you with the CW pitch that you desire, then the DSP 599zx can change it for you! With the press of a few buttons, you can change the annoying 700 Hz pitch in some rigs down to a lower frequency. This is the type of magic that can only be done with DSPs, no mechanical filter can do it!

The Data on Data

While all of these neat features are quite attractive, it was the data modes and options that originally caught my eye!

The following lists the preset filters for data mode in the DSP 599zx:

Mode	Center Freq.	Freq. Shift	Baud Rate
RTTY	2210 170	45	
RTTY 2	2210 200	45	
Amtor	2210 200	100	
Pactor	2210 200	200	
G-tor	2210 170	300	
HF Packet	1700	200	300
WeFax	Fixed Fixed	Fixed	
SSTV	Fixed Fixed	Fixed	
Clover	Fixed Fixed	Fixed	
RTT S	2210 170	75	
RTTY 4*	1275	1700	45
RTTY 8*	1275	2125	45
Sitor	2210 200	100	

* denotes mark/space frequencies.

You can change these settings as defaults in the DSP 599zx.

So, you use any mode not listed above? The only one I can guess is Pactor 2, and I am sure that you can set one of the three user-definable settings to work well.

It seems that the DSP 599zx was built for data modes. For instance, when you hit the bypass push button to take the DSP filtering out of the circuit, it maintains the same amount of latency of the audio signal so to maintain stability for those modes that have tight timing criteria.

I normally use the 200 Hz shift for RTTY as it is not too tight to allow tuning up and down the band to listen for DX.

For those of you who would like to work some RTTY without buying a modem, there is a built-in RTTY modem inside the DSP 599zx. You connect the RS232 port on the back of the filter to your computer and can use the filter as a modem! There is a little tuning indicator that you can see on the LCD screeen but I have found it too inexact for me.

Another unique feature of the DSP 599zx on RTTY is its "remodulator". This neat feature can allow the DSP 599zx to listen to a RTTY signal, and send a very cleaned up version of the tones to your normal RTTY modem, by generating its own tones. This allows your normal modem to forget band noise, overcrowding, etc.

I must admit that I have not tried the in-built RTTY modem nor the "remodulator" yet, as I have two very good modems already. It would be very interesting to compare the effectiveness of these features in the future.

Testing, Testing

Another unique feature of the DSP 599zx is that it can function as a test instrument.

The DSP 599zx functions as a Sine wave generator, an audio milli-voltmeter, a two-tone generator and a CTCSS tone decoder.

These functions are handy when you need them, but likely you will not need them very often!

Initial Results

Since I have only had the DSP 599zx for a few weeks, I have not had time to completely explore its capabilities, much less evaluate them. I have used it enough to have some initial conclusions, especially as compared with my old MFJ.

First of all, the DSP 599zx can apply a good filter for Clover users, although this might not be such a big requirement since HAL's products for Clover are already DSP-based. My MFJ DSP unit could not maintain proper signal integrity for decoding of Clover.

Second impression is that the unit is much friendlier to use. The set-up routines, aided by the LCD display, are very intuitive and easy to use. You always know what your filter's setting is with the Timewave.

Third, the quality of the Timewave appears much better.

A major advantage for the Timewave is that it is a dual channel device. I can input the audio from the second receiver into the other channel of the DSP 599zx and be able to use dual receive with my headphones. Any owner of a dual-receive transceiver will appreciate this feature.

On performance, I had no basic problems with the MFJ (outside of not being able to pass a Clover signal), and I have found no area that the Timewave has disappointed. Whether the DSP 599zx outperforms the MFJ in most areas, I have not been able to judge yet.

Conclusion

I am quite happy (so far) that I have the Timewave DSP 599zx. The outboard DSP filter market is becoming more competitive, with more companies (like SGC) entering with very professional products. This means that we all will receive more sophisticated products in the future.

At the same time, transceiver manufacturers are starting to get their DSP implementations on the market faster, and with better results. It is possible that in the coming months (not years) that there is nothing on the outboard DSP filter market that is not available within a rig.

A few years ago, many were proclaiming that DSP technology was going to be "the next big thing" for computers as well as amateur radio. I think, at least in amateur radio, the predictions have not yet come true, but are getting closer each day.

Give the Timewave DSP 599zx a try when you next visit your amateur radio store. I think its a great product.

Until March, 73!

Neal

Propagation

From a contest planning point-of-view

by Jim Coleman, KA6A • P.O. Box 522 • Garissonville, VA 22463-0522

Since this is the contest issue, I thought it might be interesting to address propagation from a contest planning point of view. Needless to say, my perspective will be heavily weighted toward operation from the area referred to, by the Society of Midwest Contesters, as the 'Black Hole' - Wisconsin, northern Illinois, eastern Iowa and western Indiana. In order to decide what to look for from propagation analysis, we need first to define the problem. Let's assume that the operation is defined as shown in Table 1.

Table 1: Contest Parameters

Contest:	Any DX contest (no value in W/VE QSOs)
Bands:	All
Transmitters:	Single
Power:	High
Antennas:	Rotatable beams on 7 MHz and higher, wires elsewhere

Thus, given the usual propagation parameters of solar flux and geomagnetic activity, we need to determine a beam heading and frequency for any time period in the 48 hours of the contest. There are additional constraints, of course. We want to maximize our score which means we want to have the maximum number of QSOs and the maximum number of multipliers. We'll look at these separately. Finally, we need to be concerned about the competition, although we can also learn a lot in real time from our competition.

Let's look at maximizing QSOs. Anywhere in the US, maximizing QSOs means concentrating on Europe and Japan, where the densities of contesting hams are the highest. And unless band conditions are very good, Japan is a distant second for the midwest and the east coast. So in terms of running stations, our first priority will be to key on these two regions of the world. Europe is, of course, a very large area taken as a whole and, though you might not want to take time to do it during the contest, it is interesting to observe how the propagation in the morning from Europe begins with Scandinavia first and progresses through to southeastern Europe and the Balkans. After these two regions, perhaps South America is the next most active region during a contest, but the numbers of active contesters just can't match Europe or Japan.

In terms of the region with greatest density of country multipliers, it might be a toss up between Europe, which consists of many countries and a large number of active ham contesters, and the Caribbean, which consists of a surprisingly large number of very small countries, most of which are activated by contest teams launching large multi-multi efforts. From a propagation point of view, both of these sources of country multipliers are no-brainers. First, for QSO purposes we plan on strongly emphasizing Europe anyway and there usually isn't a strong need to search for new multipliers from Europe. The obvious exception to this is very rare European countries, such as the Sovereign Military Order of the Knights of Malta, that occasionally mount a strong contest effort. The reason that the Caribbean is a no-brainer is simply that propagation windows to the Caribbean are generally wide on all bands, the signals are strong even with poorer propagation conditions, and the operators of those efforts are usually superb. There is no excuse for not working every Caribbean country on every band in every contest. After these two regions, however, multiplier hunting becomes a more difficult problem and is an exercise involving some elements of luck, skill, and rotator fatigue.

What about the competition? From the midwest, the competition to Europe is the east coast, of course. For the most part, there is only a brief period when the east coast has Europe while they cannot be heard in the midwest. The paths and path lengths just aren't that different. There are enough stations for everyone to maintain pretty respectable rates. The competition from the western US for JA stations can be much more frustrating. The openings to Japan are much longer for western US stations, and contesters in the midwest can listen for long periods of time to stations like W0UN running JA stations without actually hearing any of the JA station themselves. I'm sure the frustration is even greater for east coast contesters, especially if the polar paths are disturbed.

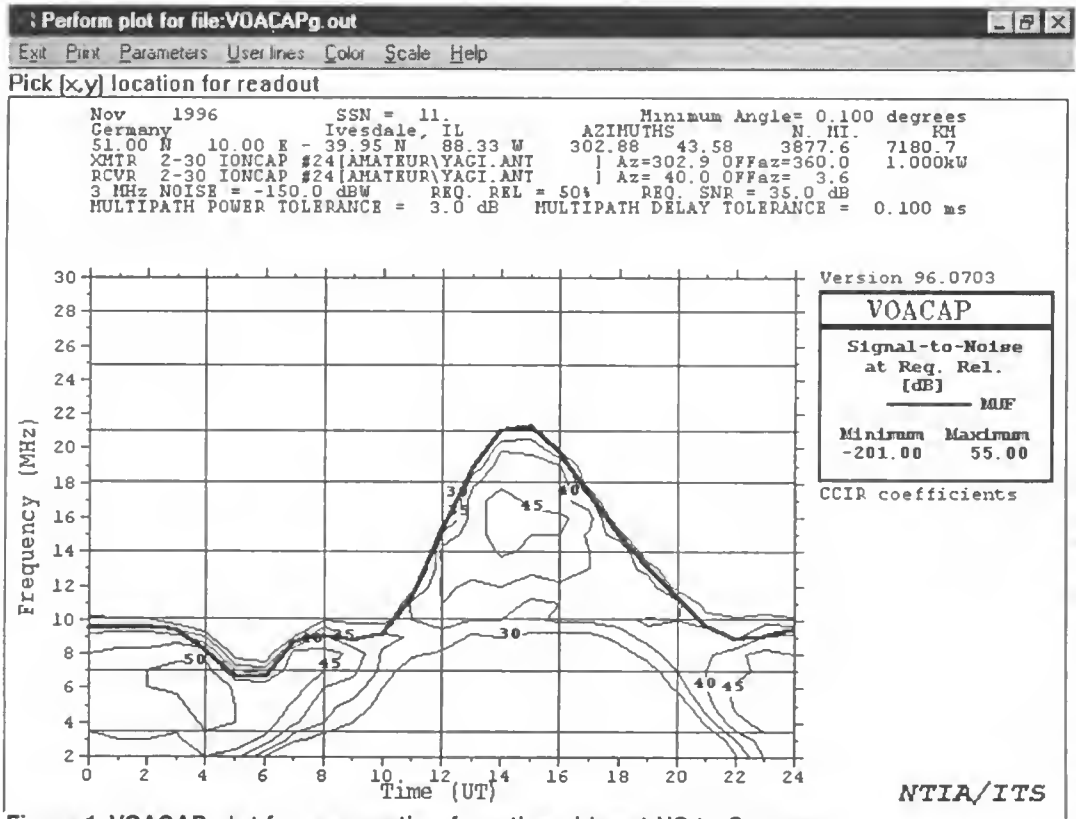


Figure 1. VOACAP plot for propagation from the midwest US to Germany.

So how do you use this competition to your advantage? The fastest way to learn about conditions to any region is to listen to the stations that the competition is working and consider the rate at which they are being worked. It may just tell you stay on the band or move to a different band.

Okay, let's look at some examples. Figure 1 shows the propagation from the midwest to Germany. This particular plot is

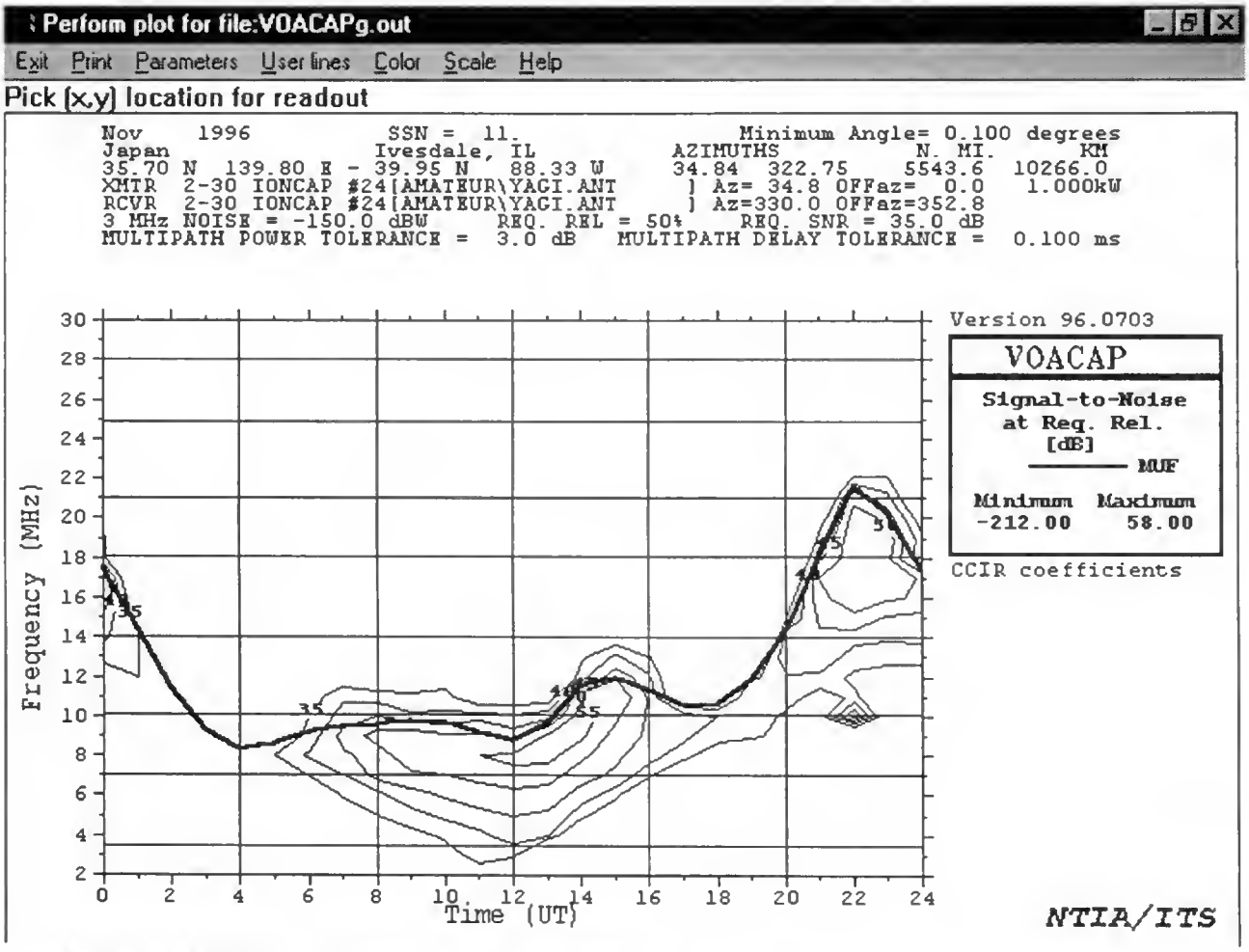


Figure 2. VOACAP plot for propagation from the midwest US to Japan.

from VOACAP for Windows and is the signal-to-noise-ratio at the required reliability (50%). The most basic approach to band selection involves considering the MUF (solid line) to be a band about 3 MHz wide. The plots indicate that we will probably get nothing on 10 meters, which is no surprise at this point in the sunspot cycle. The opening on 15 meters is likely not too long - perhaps a few hours around 1400Z. 20 meters looks good from as early as 1100 or 1130Z to as late as 2000Z. The rest of the time would be mainly spent on 40 meters, broadcast stations permitting, with a brief shot at 80 or 160 around 0500Z. Keep in mind the relative statistical basis of propagation prediction and use your ears more than the computer.

The situation for Japan is more depressing. Figure 2 shows the VOACAP for Windows signal-to-noise-ratio at the required reliability (50%) from the midwest to Japan. The 20 and 15 meter openings are much narrower in time. The MUF stays relatively high, which means that 40 meter absorption may limit openings on that band to a short time around 1200Z. If the geomagnetic activity is high, polar absorption, which is important for the midwest US to Japan path, may dominate. An easily possible result is a 40 minute opening to Japan on 20 meters and little else. Contesting can be more fun during sunspot peaks, if not more challenging!

What about the rest of the world? It's much harder to be specific. The afternoon hours local time (1800-2100Z) are good times to look for multipliers from Africa, the south Atlantic, and South America but the rates are usually pretty low. In the later evening local time, after the Japan window closes on the upper bands, it would be good to look at south Pacific and VK/ZL openings. These are usually weaker signals and the beam headings are unique so you may not hear anything unless you actively go after them. Of course, you don't want to miss any opportunity to work any of the Caribbean contest teams.

In any case, we are searching for multipliers so a lot of tuning, listening, and beam spinning is necessary. I usually work up an hour-by-hour band and beam heading plan with some specific options for hours when there is more than one possibility. After the contest, you can compare the plan with your actual rates to specific areas and fine tune the planning process for the next big contest.

All of this discussion was designed around active participation in a multi-band effort. If your real interest is understanding propagation and you are less enthusiastic about contesting, contest weekends still offer the opportunity for an amazing real-world laboratory experiment. Here are two example experiments. For the first example, choose a single band, like 15 meters, and then observe the contesting stations locations and signal strengths. You can simply monitor the band for a few minutes every hour. Spots broadcast on your local Packetcluster© node can be a great help for this experiment. Then compare the observed data with those predicted by your favorite program. In the second experiment, choose a single location, like western Europe, and hour-by-hour track signals from a single specific country on each band. Then make the same comparison with your software. Either of these experiments could be done as a participant or silent observer in the contest. And you'll learn more in a single weekend than you can otherwise in a much longer period of time.

Well that's it for this issue. By the time you read this, I hope to be back on the air after a seven month hiatus forced by moving. Look for either KA6A or K9USA in any of the cw or rtty contests. In the next issue, we'll look at another propagation software package and consider a completely different way of doing the path analysis for your ham station.

The Contest Chair

Hints, Tips & Inspiration for Better Scores

by Ron Stailey, AB5KD • 504 Dove Haven Dr • Round Rock, TX 78664
E-mail: <ab5kd@easy.com>

Hello Contesters/DXers: Happy New Year to everyone. Here it is January and time to start a whole new contesting year. Speaking of contests we have something new and different for the digital modes. I have been informed that the Northwest QRP club will sponsor a new QRP digital contest for RTTY, Amtor and Pactor modes. I'm not sure how this will work out, but it should be fun giving it a try. It's one week before WPX RTTY test. Rules are listed in this issue

This issue of the Digital Journal is the Contest issue. R ules for all contests for the entire year are listed. There are a few significant changes in several contests, so read the rules carefully before each contest. An example of changes, BARTG test now has all JA call districts as Multipliers. That's ten new mults for the BARTG'97 contest. Volta contest added all JA call districts, and ZL's 1 - 4. That's fourteen new mults for Volta '97 contest.

This issue "we hope" has several things you will like, besides all the contest rules. Jay WS7I's topic is RTTY Contesting - Myths, Hints, & Advice. Don AA5AU will tell about Low Power Contesting and, in a second article, chasing exotic DX. Jan K4QD (ex:K4QD) will tell about contesting at Guantanamo Bay during CQ/DJWW '96 RTTY Contest. Tapani OH2LU will introduce OH2GI-Ham System, a new S/W now on the market. Wayne K7WM (Ex: WA6VZI) will tell about his visit to the W5 DX BASH. Dick N1RCT will tell about Intermediate and Advanced WF1B Techniques. Eddie W6/G0AZT tells about Confirming your DX Contacts. I have attempted to write a Tips and Techniques article on Single/Ops using two radio, which follows.

Tips & Techniques for Single/Ops using Two Radios

The subject of single ops using two radios is a discussion that gets quite a lot of attention on the RTTY reflector from time to time. It's also a subject that will probably never be agreed on by all operators. Why, they suggest, is it fair for some to use two radios while others are using only one. However, it ISN'T against the rules, so I would suspect the use of two radios by S/Ops will continue.

The subject of using two radios isn't the easiest thing to write about either. I've had many requests for a column on this subject. A column with ALL the hidden secrets, so to speak. Here are all the secrets, " THERE AREN'T ANY!" It's just simply some thing you have to get used to doing. Of the three popular contest modes, RTTY is the EASIEST to run two radios as a S/Op All you have to do is set your station up right. What is right you say???? Well what's right for me and what's right for you may not be the same, but I can tell you how I do it. If nothing else, maybe it's a place for you to start

First, if you are using two radios in RTTY contesting you are looking at print, not listening to code or someone talking with one station in one ear and another one in the other. Set your monitors up so you can see both of them at the same time, or with eye movement. I have tried this several ways. I have put two monitors side by side in front of me with the radios on each side. This didn't work out, because I had to move my head to see both radios and scopes, and with the two monitors side by side would cause monitor flutter. I corrected the flutter with a piece of insulation board between the two monitors. I also tried putting the monitors on top of the radios side by side. This worked pretty well except with the monitors so close together I sometimes got mixed up with what monitor was doing what and would click the wrong mouse to send an exchange. I kept moving things around until I came up with the set up I'm using now.

At the moment here is what's right for me Then again it may not be by the time you read this time. I use two Kenwood radios with a PCI-3000 on one radio and a ST-8000 on the other. I like one Kenwood in front of me with a monitor on each side. The second radio off to the left side. The radio in the center has a Heath SB-610 scope setting on top of it and goes with the right monitor. The Kenwood on the left setting in a 45 degree angle goes with the other monitor. The monitor on the left sets on top of the ST-8000. This way I can see both monitors and scopes with eye movement only. In other words I don't have to move my head, I can even see the second radio on the left. I don't need to look directly at the second radio unless I'm changing bands or something of that nature.

Second, you will have to play with your exchange function keys. Get them set up so you can make quick exchanges. If you like to use the FRIEND.INI file with names—fine, just have another short exchange key for both radios when one or the other radio is the mult station. You want the second station's exchanges short so you can hold a frequency on the run station. If you want only one exchange on both radios, make the exchange short. Forget the name file when your using two stations. Gimmicks and tricks like that only work for a short while. Now that everyone has a huge name file it's lost any advantage it may have had at one time.

Third, head phones, external speakers etc. When I doing a S/Op with two radios I don't use headphones with one diddle in one ear and another diddle from the second radio in the other. After all a diddle is a diddle and it doesn't help me to use head phones. I use external speakers one on each end of my ten foot desk. I can tell very easily which diddle is for which radio.Naturally, being able to switch all antennas to both radios is a big help.

At my station the amplifiers are an Alpha 87A on one radio and a Drake L4B on the other My biggest problem running two radios as a S/Op is remembering to switch bands on the L4B amp. With the Alpha you don't have to do that for when you change band at the radio or with the keyboard the amp follows automatically. Other than that, I haven't had any major problems using two radios.

The conclusion is, if there are any secrets in using two radios, the secret has got to be PRACTICE. Using two radios requires a lot of it!! If you have to sacrifice a contest just practicing do it. I assure you the end result will better your score. The only reason people use two radios is to improve their scores. They don't do it because it fun. What's fun about it, is seeing all the new mults and QSO's coming in, and your score getting bigger and bigger. :-)

The above is all I can tell you about using two radios in contesting. If you haven't tried using two radios, or have tried and gave up on it, I suggest you try it, or try again. After all conditions will change for the better.

It wouldn't surprise me to see some ops using three radios in the future.That may sound ridiculous, but thinking about a contest like Roundup. With peak conditions and a radio on all three high bands (grabbing mults like crazy on two bands while hav-

ing a good run on a single band) doesn't sound so ridiculous. Just think about it, you could be seven hours into the contest with three times the mults you normally have.The thoughts of what would happen next are staggering!!! Maybe I better start looking for another radio. :-)

I hope this article will help you. If nothing else it may give you some ideas of what to do or try. Above all when conditions do change for the better, you don't want to be left at the bottom of the results list. :-(

See ya in the pile, 73's de Ron K5DJ (Ex: AB5KD)

JANUARY

SARTG New Year RTTY Contest

DATE: January 1st.

TIME: 08:00z - 11:00z.

BAND: 80 and 40 meter.

MODE: RTTY.

CLASSES: Single operator, Multi operator and SWL

EXCHANGE: RST plus serial number, name, and 'Happy New Year' in your native language.

POINTS: 1 point per QSO. Same station can be worked once per band.

MULTIPLIER: Count one multiplier per DXCC country plus each prefix in the Nordic countries.

FINAL SCORE: Total QSO points times the sum of multipliers.

AWARDS: Certificates will be issued to winners in each DXCC country, and to to the overall top five stations in each class.

LOGS: Logs must be received by January 21st, and go to:

SARTG Contest Manager
Bo Ohlsson, SM4CMG
Skulsta 1258
S-710 41 Fellingsbro
SWEDEN

Use separate log sheets per band, and submit a summary sheet.

ARRL RTTY ROUNDUP CONTEST

First full weekend in January
Sponsored by ARRL (Ref: Dec. QST)
January 4th & 5th 1997

CONTEST PERIOD: Starts at 1800 UTC Saturday and ends at 2400 UTC Sunday. Operate no more than 24 hours of this 30 hour period. Two rest periods (for a combined total of six hours) must be taken in two single blocks of time, and clearly marked in the log.

BANDS: 80, 40, 20, 15, and 10M (five bands).

MODES: Baudot (RTTY), ASCII, AMTOR, or Packet (attended operation only). Cross-mode or cross-band QSOs are not permitted.

OPERATOR CLASSES:

a) Single op, unassisted, all bands:
1) less than 150 watts output.
2) more than 150 watts output.

b) Multi op, single transmitter. Once station has begun operation on a given band, it must remain on that band for at least 10 minutes.

EXCHANGE: U.S. stations: RST and state. Canadian: RST and province. All others: RST and serial number, starting with 001. Both stations must receive and acknowledge complete exchange for QSO to count. Neither cross-band nor cross-mode QSOs are permitted. Packet QSOs through digipeaters or gateways are not permitted.

QSO POINTS: Count one point for each completed QSO (anyone can work anyone). A station may be worked once per band for QSO credit, but not for additional multipliers.

MULTIPLIERS: Count only once (not once per band), each U.S. state (except KH6 and KL7), each VE province (plus VE8 and VY1) and each DXCC country. KH6 and KL7 count only as separate DXCC countries. U.S.A. and Canada do NOT count as DXCC countries.

Canadian Multipliers:

Prefix....Province	Prefix....Province
VO1/VO2....NFLD/LAB	VE4.....MB
VE1.....NB	VE5.....SK
VE1.....NS	VE6.....AB
VE1/VY2....PEI	VE7.....BC
VE2.....PQ	VE8.....NWT
VE3.....ON	VY1.....YUKON

FINAL SCORE: Total number of QSOs times total multipliers.

AWARDS: Certificates will be awarded to: Top scoring low power and high power single operators and multi-op scorers in each ARRL/Canadian Section; Top low power and high power single operators and multi-op scorers in each DXCC country (other than W/VE); each Novice and Technician entrant; each entrant making at least 50 QSOs.

LOGS and **SUMMARY**: Logs should contain the suggested standard format: BAND, MODE, DATE/TIME, ON/OFF TIMES, CALLSIGN, EXCHANGE SENT/RECEIVED, MULTIPLIERS (marked the first time worked). Entries with more than 200 QSOs must submit duplicate check sheets (an alphabetical listing of stations worked). A Summary Sheet must show: claimed score tally, class of operation, your call, name and address. Multi-ops stations please include names and callsigns of all ops.

DEADLINE: Entries must be postmarked no later than 30 days after the end of the contest (February 8). Mail entry to:

ARRL RTTY ROUNDUP
225 Main St.
Newington, CT 06111

RECOMMENDED OPERATING FREQUENCIES (MHz):

3.580 to 3.625	14.070 to 14.095
7.025 to 7.040 RTTY DX	21.070 to 21.090
7.065 to 7.095	28.070 to 28.150

COMMENTS: The Roundup is the most popular domestic contest. It's much like the SS contests on CW/SSB. To make a high score one must concentrate on high QSO rates and lots of CQing. There are no band multipliers, meaning that once you work Utah on 15M, you will not get another multiplier for working Utah on any other band. If maintaining a high rate is just not your thing, you can set yourself another goal: see if you can work all states or provinces in the 24 hour period. In past sessions, all states have had RTTY stations on the air. This goal is especially exciting when using contesting software, such as the the WF1B RTTY contest logging software. It automatically keeps track of states/provinces worked and always shows you on the receiving screen whether you need that particular station for a new multiplier.

The Roundup is one of the few RTTY contests that has a low power category. This means that there should be more activity, primarily on the high bands. (Low power stations have a harder time cutting through the D layer absorption and QRN (static) on the low bands.) Those operating low power RTTY should pay close attention to picking out a frequency to start CQing. On RTTY it is difficult to find a clear spot on a crowded band, and

when running low power, you just get clobbered easier when you're a bit weaker. You can't always assume that everyone has sharp filters in their radios. And on the high bands you can't always hear stations within the skip distance of your QTH. Sending a "QRL? BK" is a good way to interrogate whether the frequency is in use, just as in CW and SSB. It really helps when skip distances are long. And it shouldn't upset anyone - unless the frequency IS in use, and the time between the "QRL?" and the CQ is less than one second!

FEBRUARY

Announcing
The NorthWest QRP Club Digital Contest

Date: Saturday - February 1, 1997

Time:
Saturday - Feb/1/97 17:00 UTC to
Sunday - Feb/2/97 05:00 UTC

Freqencies:
80 thru 10 meters (no WARC bands)
*Note - Use Amtor/Pactor from 14.065 to 14.080, and RTTY from 14.080 to 14.090 on 20 meters. Please do NOT use 14.060 (the QRP Calling freq.)

Mode:
Use Baudot, Pactor or Amtor only - Try FEC mode if you have trouble connecting*

Power:
QRP = Running 10 watts pep or less (maximum)

Exchange:
RS(T), NW QRP Member # (or power output if non-member), State/Province/Country

Scoring:
Submit the best 6 hours of the 12 hour contest for scoring.

5 pts each for contacting NW QRP Club Member
3 pts each for contacting non-NW QRP Member

Classes:
A. Single Operator (single transmitter)
B. Multi-Operator (single transmitter)
C. Club (single transmitter)

Awards:
Top over-all winner (all call areas)
Top DX entry
Top score from each US Call Area
Top Club Score

Submit your log by February 31, 1996 to:
Stan Yarema, KG7ME
NW QRP Club Contest Editor
3457 12th West
Seattle, WA 98119
(or) send E-Mail version of your log to: n7mfb@juno.com

International Digital Radio Association

The 3rd Annual Digital Journal

World-Wide RTTY WPX Contest

Second full weekend in February each year
February 8-9, 1997
Starts: 0000 UTC Saturday -
Ends: 2400 UTC Sunday

I. **OBJECTIVE:**
To contact as many other Amateurs around the world, using any Digital mode, including Baudot, AMTOR, PACTOR, G-TOR and CLOVER.

II. **OPERATING TIMES:**
For SINGLE OPERATOR and MULTI-SINGLE, only 30 hours of the 48 hour contest period are permitted. Off times must be a minimum of 60 minutes in length and be clearly marked in the log. MULTI-MULTI stations may operate the full 48 hours.

III. **BANDS:**

Only 3.5, 7, 14, 21 and 28 mHz bands may be used.
No WARC bands.

IV. **CATEGORIES:**

A. SINGLE OPERATOR, ALL BANDS, HIGH POWER.
B. SINGLE OPERATOR, ALL BANDS, LOW POWER, (Output 150W MAX.)
C. SINGLE OPERATOR, SINGLE BAND, NO POWER CLASSES.
D. MULTI OPERATOR, SINGLE TRANSMITTER, ALL BANDS, NO POWER CLASSES.
E. MULTI OPERATOR, MULTI TRANSMITTER, ALL BANDS, NO POWER CLASSES.
F. S.W.L.

NOTES:
1. SINGLE OPERATOR means, ONE person performs all the operating and logging.
2. All SINGLE OPERATOR categories are permitted only ONE signal on the air at a time.
3. CATEGORY D: Only ONE transmitter and only ONE band permitted during the same time period, defined as 10 minutes.
4. CATEGORY E: No limit to the number of transmitters but only ONE signal permitted per band.
5. SWLs must identify both stations heard and log both exchanges.
6. All transmitters must be located within a 500 meter diameter or within property limits, of the station licensee's address, whichever is greater. All antennas must be physically connected by wires to the transmitters and receivers.

V. **DX PACKET CLUSTERS AND DX ALERTING ASSISTANCE ARE PERMITTED IN ALL CATEGORIES.**

VI. **EXCHANGE:**
RST and a progressive three-digit serial number, starting with 001. Continue to four digits if necessary. Multi transmitter stations may use separate numbers for each band.

VII. **POINTS:**
A. Contacts between stations on different continents are worth three (3) points on 28, 21, and 14 mHz, and six (6) points on 7, 3.5 mHz.
B. Contacts between stations on the same continent but different countries and contacts with Maritime Mobile stations are worth two (2) points on 28, 21, and 14 mHz and four (4) points on 7, 3.5 Mhz.
C. Contacts between stations in the same country are worth one (1) point on 28, 21, and 14 mHz, and two (2) points on 7, 3.5 mHz.

VIII. **MULTIPLIERS:**
Each VALID PREFIX is counted as a multiplier. Multipliers are counted only ONCE, not once per band, i.e. NO band multipliers. However, the same station may be contacted on other bands for additional points credit.

IX. **PREFIXES:**

The letter/number combination which forms the first part of the callsign will be considered the PREFIX. Examples: N8, W8, AB8, DL5, DJ2, HG1, WD200, WF96, 3DA0, GB75, ZS66, U3 etc. Any difference in the numbering, lettering or order of same, shall constitute a separate prefix. A station operating from a DXCC country different from that indicated by its callsign, MUST sign portable. he portable prefix must be an authorized prefix for the country or call area of operation. In the case of portable operation, the portable designator will become the prefix.

Example: AB5KD operating from Wake Is. MUST sign AB5KD/KH9 or KH9/AB5KD.

AMERICAN DX, i.e. KL7, KH6, KP2, KH3 etc, operating within the 48 states, MUST sign with a FULL designator of their choice.

Example: KL7xx/W7 or any other prefix authorized for use in the U.S. 7th call district, i.e. KL7xx/WY7.

UNITED STATES portables are NOT permitted to select a portable designator. E.g. WS7I/2 is correct, but WS7I/WY5 or WY6/WS7I is NOT.

PORTABLE DESIGNATORS, without numbers will be assigned a zero (0) after the second letter of the designator to form the prefix. WS7I/PA would become WS7I/PA0. All calls without numbers will be assumed a zero (0) after the first two letters to form the prefix.

Examples: XEFTJW would count as XE0, RAEM would count as RA0, etc. /A, /E, /J, /P, /M, /MM, /QRP or interim license class identifiers do NOT count as prefixes.

Special event, commemorative, and other prefix stations are encouraged to participate.

SCORING:

1. SINGLE OPERATOR:
(a) All Band score: total QSO points from all bands multiplied by the number of different Prefixes worked.
(b) Single Band score: QSO points on the band multiplied by the number of different Prefixes worked on the same band.
2. MULTI-OPERATOR stations. Scoring in both these categories is the same as the All Band scoring for Single Operator.

XI. **LOW POWER CATEGORY**: (Single Operator only)
Output must not exceed 150 watts. You must indicate Low Power on the Summary.

XII. **AWARDS**:
Certificates will be awarded to the highest scoring station in each category listed under Section IV. of the rules.

1. In every participating country.
2. In each call area of the U.S., Canada, Australia, and Japan.
3. All scores will be published. However to be eligible for an award a Single Operator station must show a minimum of 12 hours of operation. Multi-Operator stations must operate a minimum of 18 hours. Plaques will be awarded only to serious contest efforts. Decisions of the contest chair are final.
Contestants are permitted to submit only ONE CATEGORY log for plaque or certificate consideration. However, SINGLE BAND entrants, are allowed to operate on other bands, to encourage activity. Any logs other than their chosen band log, will be used as check logs.

XIII. **Plaque List**.
Additional Plaque donors are always needed for the contest. Contact K5DJ.

XIV. **LOG INSTRUCTIONS**:
1. All times must be in UTC. All rest periods must be clearly marked. Single Operator logs must be submitted in chronological order. Multi-Multi logs must be submitted chronologically by band. Multi-Single logs can be submitted either way.
2. Prefix Multipliers should be entered only the first time they are contacted. They must be clearly marked.
3. Logs must be checked for duplicate contacts, correct points, and prefix multipliers. Duplicate contacts must be shown.
4. An alpha/numeric check list of claimed PREFIX multipliers must be submitted with your log. (Unless disk or electronic entry is submitted).
5. Each entry must be accompanied by a Summary Sheet listing all scoring information, the category of competition, and the contestant's name and mailing address. May be electronic. Also submit a declaration that all contest rules and regulations for amateur radio in the country of the contestant have been observed.
6. Official logs and sample summary sheets are available. A large self-addressed envelope with sufficient postage or IRC's must accompany your request. Contest software, e.g. RTTY by WF1B and OH2GI- HAM SYSTEM, is available and they are considered adequate logging software for this contest.
7. Contest logs may be submitted on disk, E-mail, or Internet. Logs submitted on disk must contain all required information. (Date, Time, Band, Call, RST & NR Sent, RST & NR Recd, Multiplier, and QSO Points). Files must be in ASCII format and in chronological order for Single Operators and Multi-Single entrants. Multi-Multi entrants must submit logs chronological by band. A sorted multiplier file is also required.
Only MS-DOS compatible disks will be accepted (either 5 1/4 or 3 1/2 inch). A SASE with QSL Card will get a reply that your log has been received. Internet logs must be uuencoded or file attached. E-mail confirmations will be done.

XV. **DISQUALIFICATION**
Violations of amateur radio regulations in the country of the contestant, or the rules of the contest, unsportsmanlike conduct, taking credit for excessive duplicate contacts, non-verifiable QSOs or multipliers will be deemed sufficient cause for disqualification. Incorrectly logged calls will be counted as non-verifiable contacts. An entrant whose log is deemed by the Contest Committee to contain a large number of errors may be disqualified. The contest committee's decisions are final.

XVI. **DEADLINE**:
Entries must be postmarked no later than thirty (30) days after the end of the contest. The World Wide RTTY WPX Contest will always be the Second (2nd) full weekend of February.

The IDRA WW RTTY WPX Contest is not connected with CQ Magazine, however it's existence was inspired by the famous CQ WPX SSB and CW contests.

Mail Contest Entry and Logs or Disks to:

Ron Stailey, K5DJ
504 Dove Haven Dr.
Round Rock, Tx. 78664-5926
USA

Or via Internet: k5dj@easy.com

For IDRA WPX rules, log forms or information, contact;

Eddie Schneider, W6/G0AZT
P.O. Box-5194
Richmond, CA 94805
USA

Please enclose an SASE or return postage.
Or via Internet: edlyn@global.california.com

MARCH

BARTG SPRING RTTY CONTEST

Sponsored by British Amateur Radio Teledata Group.
Third full weekend in March (Ref: BARTG, G4SKA)

Contest Period: From 0200Z Saturday to 0200Z Monday (48 hours) Maximum operating time allowed: 30 hours for single op and SWL entries. Multi-operator stations may operate the full 48 hours. The 18 hours of rest periods may not be less than 3 hours each.

MODE: RTTY only

BANDS: 80, 40, 20, 15, and 10M

CATEGORIES: 1) Single op, all band 2) Single op, single band 3) Multi-op, all band 4) Multi-op, Multi-transmitter 5) Short Wave Listener

NOTE: Categories 1, 2, and 3 may not transmit on two or more bands at the same time. No station may enter more than one category.

EXCHANGE: Send: RST + QSO number + Time in UTC.

MULTIPLIERS:

"NOTE:" (((Starting in '97, JA 0 thru 9 call areas are now included as additional multipliers.)))

Each DXCC country, including first QSO with W, VE, VK and JA will counts as a multiplier on each band. Each call district in W, VE, VK and JA will count as an additional multiplier on each band. Also, each continent (6) will count once, not once per band.

QSO POINTS: Count 1 point per QSO. Same station may be worked on other bands. Duplicate contacts on same band receive zero points and must be clearly marked in the log.

FINAL SCORE: Total QSOs x total multipliers x number of continents (max 6)

LOGS: Use separate logsheets for each band. Logs must show: BAND, DATE and TIME (UTC), CALLSIGN, MESSAGE Sent and Received, COUNTRIES and POINTS claimed. Summary sheet must show full scoring, times of operation, and address for correspondence. Include names and callsigns of all multi-op station operators. Computer generated logs containing all specified info are welcome.

DEADLINE: Logs must be received by May 31 to qualify.
Mail logs to:

JOHN BARBER G4SKA
PO BOX 8
TIVERTON, DEVON
EX16 5YU, ENGLAND

AWARDS: Certificates will be awarded to the top 3 stations in each category, the top 5 single operators in each continent, and to the top single operator in each W/VE/VK call area.

Your comments would be much appreciated. Please include them with your log.

COMMENTS: By Rich N6GG,
This is a 48 hour contest, but only 30 hours operating time allowed for single ops. The time off periods must be 3 hours minimum length and listed in the summary sheet. This contest gets great activity from all over the world. Try to plan your off times to be during the least productive time of day, such as when propagation does not favor your area. The fact that W/VE/VK/JA call areas count as separate countries on each band means that CQing should be the most productive way to make a good score for the W/VE/VK ops. Also, band multipliers helps to alleviate the QRM on the high bands, by spreading out the CQers to other bands. Don't forget the WAC bonus of six multipliers.

APRIL

EA RTTY CONTEST 1997 RULES

Organized by "UNION DE RADIOAFICIONADOS ESPANOLES (U.R.E.)", the
EA RTTY CONTEST
was created to promote activity in RTTY mode and is open to radio amateurs world-wide.

DATE: 1600 Z Sat. to 1600 Z Sun., April 5 - 6, 1997

MODE: RTTY-BAUDOT

BANDS: 10, 15, 20, 40 and 80 meters, according to IARU band plans.

CLASSES:
a) Single operator all band.
b) Single operator single band
c) Multi operator all band only
d) SWL

CALL: "'CQ EA TEST"

MESSAGE: RST and CQ Zone. A Stations send RST and "PREFIJO PROVINCIAL".

POINTS: 10, 15 and 20 meters bands, one for contact within own continent, two for contact outside own continent. On 40 and 80 meters bands, three for contact within own continent, six for contact outside own continent. Contacts between stations in the same DXCC country are valid for multiplier credit, but have zero point value. Contacts between stations worldwide are valid. It is not necessary to contact EA stations.

MULTIPLIERS: DXCC COUNTRIES and Spanish Provinces (PREFIJOS PROVINCIALES) on each band. ***CQ Zones DO NOT count as multipliers.***

The Spanish "Prefijos Provinciales" are:

A-ALICANTE, AB-ALBACETE, AL-ALMERIA, AV-AVILA, B-BARCELONA, BA-BADAJOZ, BI-BILBAO, BU-BURGOS , C-LA CORUNA, CA-CADIZ,CC-CACERES, CE-CEUTA, CO-CORDOBA, CR-CIUDAD REAL, CS-CASTELLON, CU-CUENCA, GC-G.CANARIA, GI-GIRONA, GR-GRANADA, GU-GUADALAJARA, H-HUELVA, HU-HUESCA, J-JAEN, L-LERIDA, LE-LEON. LO-LOGRONO, LU-LUGO, M-MADRID, MA-MALAGA, ML-MELILLA, MU-MURCIA, NA-NAVARRA, O-OVIEDO, OR-ORENSE, P-PALENCIA, PM-PALMA de MALLORCA, PO-PONTEVEDRA S-SANTANDER SA-SALAMANCA SE-SEVILLA SG-SEGOVIA SO-SORIA
SS-SAN SEBASTIAN T-TARRAGONA TE-TERUEL TF-TENERIFE TO-TOLEDO V-VALENCIA VA-VALLADOLID VI-VITORIA Z-ZARAGOZA ZA-ZAMORA

FINAL SCORE: Total points in all bands x total multipliers in all bands.

TROPHIES: Award and plate to winner in class A. Award to winners in class: B), C) and D)

LOGS: Use separate log sheet for each band. Include a summary sheet showing the scoring and other essential information. Official log forms are recommended. Mailing deadline for all entries is May 10th 1997, to:

EA RTTY CONTEST MANAGER
ANTONIO ALCOLADO (EA1MV)
P.O.BOX 240
09400 ARANDA DE DUERO (BURGOS)
SPAIN.

SP DX RTTY CONTEST

Organized and run by Polish Radiovideography Club (PK RVG).
Fourth full weekend in April (Ref: SP2UUU)

CONTEST PERIOD: From 0000Z Sat. to 2400Z Sun. (48 hours) Single ops allowed only 36 hours operation. No restrictions on length of rest periods.

MODE: RTTY only

CONTEST CALL: "CQ SP RVG TEST"

BANDS: 80, 40, 20, 15, and 10M

CATEGORIES:
Single Operator, All Band
B. Multi-Operator, All Band
C. SWL
D. SP stations

MESSAGE EXCHANGE:
Send: RST + CQ Zone number. SP stations send: RST + Province (2 letters) NOTE: Polish stations will use a two letter abbreviation of their province. There are 49 SP provinces. Also: CQ Zones do NOT count as mults.

MULTIPLIERS: Count each DXCC country, including 1st QSO with your own country,
on each band; and 1st SP station, and each SP province on each band. (Band mults) Also, each continent (max. of 6) will count once, not once per band.

QSO POINTS:
* Count 2 points for QSO with own country

* Count 5 points for QSO with other countries on your continent.
* Count 10 points for QSO with countries not on your continent.

FINAL SCORE: Total QSO points x total mults x number of continents (max 6). SWL rules apply as above.

LOGS: Use separate log sheets for each band. Logs must show: BAND, DATE and TIME in UTC, CALLSIGN, MESSAGE sent and received, country multiplier and points claimed. Entries with more than 100 QSOs must submit duplicate check sheets. Multiple operator stations should include names and callsigns of all operators. We invite you to submit logs on computer disk. The format we prefer is CT.BIN file (K1EA), or RTTY by WF1B.

AWARDS: First place plaque to top winner in all classes, 1st thru 3rd place winners will receive certificates in each class and in each continent. NOTE: Awards will be issued based on participation of 20 or more entries in each class. NOTE: Contest Committee will send results to all participants in test.

DISQUALIFICATION: Violation of the rules of the contest or taking credit for incorrect QSOs or multipliers, or duplicate contacts in excess of 3% of the total made, will be deemed sufficient cause for disqualification. The decision of the SP DX RTTY Contest Committee are final and not contestable.

DEADLINE: Logs must be postmarked no later than June 15 to qualify. An extension may be granted if requested. Mail logs to:

SP DX RTTY Contest Manager
Christopher Ulatowski, SP2UUU
P.O. BOX 253
81-963 GDYNIA 1
POLAND

COMMENTS: Everyone, mainly W/VE stations: don't forget to count 1 multiplier for your first domestic QSO on each band. (Updated March 20, 1996)

MAY

VOLTA RTTY WW Contest

Sponsored by SSB and RTTY Club of COMO,
and A.R.I. (Associazoine Radioamatrore Italiani)
Second full weekend in May (Ref:A.R.I., I2DMI)

This contest honors the Italian discoverer of electricity, ALESSANDRO VOLTA.

CONTEST PERIOD: 1200Z Saturday May 10th to 1200Z Sunday 11th. (no rest periods required)

BANDS: 80, 40, 20, 15, and 10M.

CLASSES:
A1 - Single op, all bands
A2/xx - Single op, single band (xx = band)
B - Multi-op, single transmitter
C - SWL.

EXCHANGE: Send: RST + QSO NR. + CQ Zone NR.

MULTIPLIERS: (note: Note: From 1997 Onwards, JA1-0 and ZL1-4 become additional multipliers) DXCC Country List + each call area in VK, VE, JA, ZL1-4 and USA. DO NOT COUNT VK, VE, JA, ZL1-4 or USA as separate country.(USA stations with callsign from one district but are now living in a different district should give proper identification, such as: K6WZ/0.) The same multiplier counts again on a new band. An additional multiplier is given for each INTERCONTINENTAL COUNTRY worked on at least four bands. Contacts between stations within the same country will not be valid, such as: A W2 station can work W1, W3, W4, etc. but not W2. Contacts made OUTSIDE one's own continent on 80 or 10M count double.

QSO POINTS. A contact with a station that would count as a multiplier will be valid only if that station appears in at least 4 other logs, or a contest log is received from that station.

FINAL SCORE = total QSO points x total mults (band mults + each INTERNATIONAL COUNTRY worked on 4 bands) x total number of QSOs. (Pts x Mults x QSOs).

Use Exchange Points Table, revised October 1996 to determine points scored for each QSO.

AWARDS: A SPECIAL trophy will be awarded to the top stations in each class. In addition, a certificate with special sticker to all entrants.

LOGS: Use separate logsheets for each band. Logs must show: BAND, DATE and TIME (UTC), CALLSIGN and MESSAGE Sent and Received, POINTS and NEW MULTIPLIER

PREFIX. Summary sheet must show full scoring, and list of multipliers worked. Multi operator logs must list names and callsigns of all operators. (Comments would be very much appreciated.)

Logs must be received by July 31st 1997,to qualify. Send logs to:

Francesco Di Michele, I2DMI
P.O. Box 55
22063 Cantu
ITALY

ARI International DX Contest

First full weekend in May
Sponsored by Associazione Radioamatori Italiani (ARI)

CONTEST PERIOD: Starts at 2000 UTC Saturday, ends at 2000 UTC Sunday (24 hours) No off periods required.

MODES: cw, ssb, and RTTY. BANDS: 160, 80, 40, 20, 15, 10M. (No RTTY on 160M)

CATEGORIES: a) Single Op - cw b) Single Op - ssb c) Single Op - RTTY d) Single Op Mixed e) Multi-Op Single Tx, Mixed f) SWL - Single Op - Mixed

NOTE: RTTY Contesters who have cw and/or ssb abilities also have a significant advantage by operating in the "Mixed" Category. (Three QSOs per band - but QSOs must be more than 10 minutes apart.) See "Penalties and Disqualifications."

EXCHANGE: Italian stations send: RST + 2 letters to identify their province. All others send: RST + serial number, starting with 001.

MULTIPLIERS: Each Italian province (103) and each DXCC country (except I & IS0). Each multiplier counts only once per band, regardless of mode. This means there are band mults but no mode mults.

The 103 Italian provinces (by call area) are:
I1: AL, AT, BI, CN, GE, IM, NO, SP, SV, TO, VB, VC.
IX1: AO
I2: BG, BS, CO, CR, LC, LO, MI, MN, PV, SO, VA.
I3: BL, PD, RO, TV, VE, VR, VI.
IN3: BZ, TN.
IV3: GO, PN, TS, UD.
I4: BO, FE, FO, MO, PR, PC, RA, RE, RN.
I5: AR, FI, GR, LI, LU, MS, PI, PO, PT, SI.
I6: AN, AP, AQ, CH, MC, PS, PE, TE.
I7: BA, BR, FG, LE, MT, TA.
I8: AV, BN, CB, CE, CS, CZ, IS, KR, NA, PZ, RC, SA, VV.
I0: FR, LT, PG, RI, ROMA (or RM), TR, VT.
IT9: CL, CT, EN, ME, PA, RG, SR, TP, AG.
IS0: CA, NU, SS, OR.

QSO/POINTS:
QSO/HRD with own country = zero points but counts for multipliers.
QSO/HRD with own continent = 1 point.
QSO/HRD with other continent = 3 points.
QSO/HRD with any Italian (I & IS0) station = 10 points.
NOTE: Same station may be QSOd on same band once with any mode (ssb/cw/RTTY) but only the first QSO would count as a possible new multiplier.

FINAL SCORE: Total QSO points x total mults. SWLs use same rules as QSO ops.

LOGS and SUMMARY SHEETS: Use separate logsheets for each band. Logs must show: BAND, DATE and TIME in UTC, CALLSIGN, MESSAGE (sent and received), country or province prefix, and QSO points claimed. Summary sheet must show: callsign, name and address, class of entry, callsigns of other operators, all scoring details, and a signed declaration of abiding by all the rules.

LOG DEADLINE: Logs must be postmarked within 30 days of contest. Mail to:

ARI Contest Manager
Paolo Cortese, I2UIY
P.O. Box 14
I-27043 BRONI (PV)
ITALY

PENALTIES AND DISQUALIFICATIONS:
Disqualification may apply for:
1. Excessive number of unmarked duplicates (more than 2%)
2. Violation of the "10 Minutes Rule" (either for band or mode).
3. Excessive declared score (more than 5%).
4. Log without summary sheet.

Penalties may apply for:
5. Each duplicate contact removed by the Contest Committee costs 3 QSOs.
6. Each multiplier counted twice or more on same band costs 2 multipliers.
7. Each non-existing or unverifiable station logged costs 5 QSOs.
8. Instead of disqualification of a log, the Committee may decide to penalize by erasing a percentage of its score.

AWARDS: A plaque with a certificate will be awarded to top scoring station in each class. Special plaques can be awarded by the Contest Committee if country/continental/call-area participation will justify the decision. A certificate will be awarded to No. 2,3,4, and 5 top scoring stations in each class as well as to the top scoring stations in each country in each class.

SPECIAL AWARD: Two very attractive, large size plaques will be awarded by Santa Barbara Contesters to keep alive the memory of I3ANE, Pietro Fiorito. The plaques will be assigned to:
—Best score achieved by Operator under 21 years of age.
— Best score achieved by SWL under 18 years of age.
In order to qualify for these awards, entrants must clearly state their age and birth date on the summary sheet.

LOGS ON DISKETTES: Logs on diskettes are very welcome and accepted in substitution of paper logs. Accepted formats are: N6TR, K1EA, ASCII, as well as the MS/DOS software distributed FREE of cost from the Contest Committee. A printed summary sheet must always be enclosed.

The free software can be used in either real-time or after the contest. It calculates points, multipliers and score. You have to type in the callsign and received report. It prints logs, summary sheet and dupe sheets as well as QSL PRINTER! labels. It has PacketCluster capability. An updated version is now available, revised and modified. The software can be received by sending to the Contest Manager $5 us dollars or 10 IRCs to cover diskette and postage expenses.

COMMENTS: This contest has been around for a while on cw and ssb. RTTY was added in 1994. It occurs just 1 week before the popular VOLTA RTTY DX Contest, and has 103 additional Italian prefixes to keep track of on each band. It's a 24 hour, no-rest-periods contest with plenty of things to keep you busy. If you decide to go all mixed up, don't forget that RTTY software won't work on cw or ssb, and verse viza. 40M could be loaded with QRM, as SSB and CW contesters are also sharing the frequencies. Separate logsheets are required for each band.

JUNE

ANARTS WW RTTY/Digital Contest

Sponsored by
Australian National Amateur Radio Teleprinter Society
Second full weekend in June (Ref: ANARTS, VK2BQS)

CONTEST PERIOD: from 0000Z Sat. to 2400Z Sun. (48 hours) Maximum operating time allowed: 30 hours for Single op entries and SWLs. No restrictions on duration of rest periods. Multi-op stations may operate the entire contest period. Summary of operating times must be submitted with log.

BANDS: 80, 40, 20, 15, and 10M.

CLASSES: (A) Single-op; (B) Multi-op; and (C) SWL.

MODES: All digital modes permitted; RTTY, AMTOR, FEC, and Packet.

EXCHANGE: RST + Zone + Time (UTC).

MULTIPLIERS: Each ARRL DXCC Country, and each call district of VK (1-8), JA, VE, and W count as separate countries on each band.(band multipliers) QSOs with one's own country is not valid for multiplier count. (Contacts with one's own country does count for QSO point but does NOT COUNT AS A MULTIPLIER) Each continent QSO counts as a multiplier (maximum of six).

QSO POINTS: Use "Revised 1994 Exchange Points Table" to determine QSO points. Any Exchange points Table before 1994, should not be used.

SCORING: Total QSO points x total multipliers x number of continents worked. (max. 6) After the above calculations, World stations add 100 points for each VK QSO on 20M, 200 points for each VK QSO on 15M, 300 points for each QSO on 10M, 400 points for each VK QSO on 40M, and 500 points for each VK QSO on 80M.

AWARDS: Plaques will be awarded for first place in each class. Certificates will be issued for 1st, 2nd, and 3rd place on world basis, and also on a country basis. The judge's decision will be final and no correspondence will be entered into. Logs become the property of ANARTS.

LOGS: Separate logsheets are required for each band. Logs must show: BAND, DATE and TIME (UTC), CALLSIGN, MESSAGE Sent and Received, NEW MULTIPLIERS, and QSO POINTS. Summary sheet must show: Your callsign, name and address of operator, bands used, points claimed for each band, number of VK stations QSOed, total points claimed, and signature/s. Multi-op station logs must contain the signatures and callsigns of each operator. A general certification regarding compliance with rules is also required.

LOG DEADLINE: Logs must be received by the Contest Committee by September 1st.
Mail to:

Contest Manager, VK2BQS
Jim Swan
P.O. Box 93
TOONGABBIE, N.S.W. 2146
AUSTRALIA

COMMENTS: For single op stations, this is a 30 hour contest (out of the 48 hours). Multi-op stations may operate the full 48 hours. QSO points are determined by the Exchange Points Table. This table is based on the 40 CQ Zones and is arranged so that the further away the QSO is from your Zone, the higher the points scored. (PLEASE NOTE: CQ Zones DO NOT count as multipliers.) Each VK, JA, VE, and W call areas count as separate countries on each band. This contest counts band multipliers, making the low bands more active, and giving more bonus QSO points, too. Don't forget to work the continents for additional mults. Try to keep track of your operating time, as single ops are only allowed a maximum of 30 hours out of the 48 hour period. Your Summary Sheet requires that you list your TIME ON/OFF records.

JULY

North American QSO Party RTTY Mode (NAQP)

Third full weekend in July
Sponsored by National Contest Journal (NCJ)
(July 19-20, 1997)

1) **Eligibility**: Any licensed radio amateur may enter.

2) **Object**: To work as many North American stations (and/or other stations if you are in North America) as possible during the contest period.

3) **Entry Classification**: Single Operator and Multioperator, TwoTransmitter. Multioperator stations shall keep a separate log for each transmitter. Multioperator stations must have at least 10 minutes between band changes. Use of helpers or spotting nets by single operator entries is not permitted. Single operator entrants may only have one transmitted signal at a time. Output power must be limited to 150 watts for eligible entries.

4) **Contest periods**:

RTTY: 1800 UTC July 20th to 0600 UTC July 21st, 1996

Multioperator stations may operate for the entire 12 hour period. Single operator stations may operate 10 out of 12 hours. Off times must be at least 30 minutes in length and must be clearly marked in the log.

5) **Mode**: RTTY only in RTTY parties.

6) **Bands**: 80, 40, 20, 15 and 10 meters only. You may work a station once per band. Suggested frequencies are: 3585, 7085, 14085, 21085 and 28.085 on RTTY. Try 10m at 1900Z and 2000Z 15m at 1930Z and 2030Z etc.

7) **Exchange**: Operator name and station location (state, province or country).

8) **Valid Contact**: A valid contact consists of a complete, correctly copied and legibly logged two-way exchange between a North American station and another station. Proper logging requires including the time of each contact. Regardless of the number of licensed call signs issued to a given operator, one and only one call sign shall be utilized during the contest by that operator.

9) **North American Station**: Defined by the rules of the CQWW DX Contests with the addition of KH6.

10) **Scoring**: Multiply total valid contacts by the sum of the number of multipliers worked on each band. Multipliers are states (including KH6 and KL7), Canadian Provinces (Canadian multipliers are: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, PEI, Labrador, Yukon, and NWT) and other North American countries (do not count USA, Canada, KH6, or KL7 as countries). Non-North American countries do not count as multipliers, but may be worked for QSO credit.

11) **Reporting**: Send North American QSO Party RTTY logs to: Ron Stailey K5DJ, 504 Dove Haven Dr., Round Rock, TX 78664-5926. Entries must be postmarked not later than 30 days after the party to be eligible for trophies and awards. An proper entry consists of (1) a summary sheet showing the number of valid contacts and multipliers by band, total contacts and multipliers, total score, team name (if any), power output, name, call sign, and address of the operator, station call sign and station location; (2) a complete legible log of all contacts (including dupes marked as such) with indication of multipliers claimed; (3) a separate check sheet for each band; and (4) a list of all claimed multipliers worked on each band. Logs, summary sheets and check sheets may be home made or patterned after those published periodically in the NCJ. Logs may be submitted on disk in the form of files generated (.BIN & .SUM) by WF1B program or MS-DOS ASCII files consisting of all information in (1)-(4) above if generated from a program other than RTTY by WF1B. All entries should include a written, signed statement of "Fair and ethical Operation".

12) **Team Competition**: Team competition is limited to a maximum of 5 single operator stations as a single entry unit. Groups having more than 5 members may submit more than one team entry. PRE REGISTRATION REQUIREMENT: To qualify as a team entry, the name, call sign of each operator, and call sign of the station operated should the operator be a guest at a station other than his own (e.g. K1NG op by WF1B) must be registered with K5DJ. The team registration information must be in written, telegraphic or e-mail (k5dj@easy.com) form and must be received before the start of the NAQP. There are neither distance nor meeting requirements for a team entry. The only requirement is pre-registration of the team.

13) **Penalties and Disqualification's**: For each unmarked duplicate QSO, you lose that contact plus an additional three contacts; for each QSO for which you are not in the other stations log, you lose that QSO plus an additional one contact; and for each QSO for which the log data is incorrectly copied in any respect, you lose that contact. Entries with score reductions greater than 5% will be disqualified. Any entry may be disqualified for illegibility, illegal or non-ethical operation. Such qualification is at the discretion of the NCJ Contest Review Committee.

14) **Awards**: A plaques will be awarded for the high score in each of the following categories:
Single operator RTTY—Plaque Sponsor: Glenn Vinson, W6OTC
- Multioperator RTTY——Plaque Sponsor: RTTY by WF1B

Certificates of merit will be awarded to the highest scoring entrant from each State, Province, and North American Country. With at least 200 QSOs.

COMMENTS: We now have an RTTY NAQP. It's a short 12 hour sprint - a non-DX blast for low power stations. (150W max.) The object is to work as many North American stations as you can, so that makes it a rate-contest first, and let mults fall where they may. There are band mults, so there'll be lots of mults to keep track of. This kind of contest will help you to smooth out the rough edges of your operating skills by keeping you alert and quick. If your choice mode is CQing, you'll get into a routine of "one-key-itus" when using logging software, especially when using "RTTY by WF1B" and callers use "DE" in front of their calls. If you want to increase your skills with "Search and Pounce", its a matter of how quickly you find CQs and how short to make your call and exchange. Try not to break the standard exchange, such as sending your call and the exchange before contact has been established. It disrupts the rhythm of the routine and thus slows the rate of the CQer. If the station you're working is loud, send exchange just once. Hint: when assigning "F-key" messages, set the exchange for a one-time shot. If there is lots of QRM, hit the F-key twice but be sure you set a proper break between the double (like <CR> or space).

RUSSIAN RTTY WW CONTEST

Last full weekend in July
Sponsored by: Russian Centr Radio Club (RCRC)
Ulyanovsk State Technical University (USTU)
Organized and run by Ulyanovsk Signal DX Club (SDXC)
(Ref:UA4LCQ)

CONTEST PERIOD: FROM 00.00 Sats TO 24.00 Sun. (48 Hours) Single ops allowed only 36 hours operation. No restrictions on length of rest period

MODE: RTTY only

BANDS: 80, 40, 20, 15, AND 10M

CATEGORIES:
A. Single Operator, All Band
B. Single Operator, Single Band
C. Multi-Operator, All Band
D. SWL

MESSAGE EXCHANGE:
Send:RST + CQ ZONE Russian station send: RST + 2 letters to identify their oblast

MULTIPLIERS:
Count each DXCC country and each Russian oblast on each band. (Band Multipliers)

NOTE:
CQ ZONE do NOT count as multipliers.

QSO POINTS:
- Count 5 point for QSO with on your continent.
- Count 10 point for QSO with not on your continent.

FINAL SCORE:
Total QSO points x total mults
SWL rules apply as above.

LOGS:
Use separate log sheets for each band. Logs must show: BAND, DATE and TIME in UTC, CALLSIGN, MESSAGE send and received, country multiplier and point clamed. Entries with more than 100 QSOs must submit duplicate check sheets. Multiple operator station should include names and callsigns of all operators.

Mail logs to:
RUSSIAN RTTY WW CONTEST MANAGER
YURI KATYUTIN, UA4LCQ
P.O.BOX 1200
ULYANOVSK, 432035 RUSSIA.

73, YURI/UA4LCQ

AUGUST

SARTG WW RTTY Contest

Sponsored by the Scandinavian Amateur Radio Teleprinter Group. (SARTG)
Third full weekend in August. (Ref: SARTG, SM4CMG)

CONTEST PERIODS: Three separate periods: 0000-0800 UTC Saturday, 1600-2400 UTC Saturday, and 0800-1600 UTC Sunday.

BANDS: 80, 40, 20, 15, and 10M. (five bands)

CLASSES: A) Single op, All Band; B) Single op, Single Band; C) Multi-op, Single Tx, all band; D) SWL, all band.
NOTE: Single op, All Band stations may also enter as a single band entry of their choice, too.

MODES: RTTY only.

EXCHANGE: RST + QSO number, starting with 001.

MULTIPLIERS: Each DXCC country on each band, including first contact with Australia, Canada, Japan and USA. Additionally, each call area in VK, VE, JA and W will count as one multiplier on each band.

QSO Points: QSO with own country, 5 points. QSO with other countries in own Continent, 10 points. QSO with other continents, 15 points. In VK, VE, JA, and W, each call area will count as a separate country.

SCORING: Sum of QSO points x sum of multipliers = TOTAL SCORE.

AWARDS: To the top stations in each class, country, and district, if the number of QSOs is reasonable.

LOGS: Use separate logsheets for each band. Logs must show: BAND, DATE/TIME (UTC), CALLSIGN, EXCHANGE MESSAGE SENT and RECEIVED, MULTIPLIERS, and QSO.

POINTS. Summary sheet must show scoring, class, your callsign, and name and address. Multi-op stations must show the callsigns and names of all operators involved. Your comments will be very much appreciated.

LOGS DEADLINE: Logs must be received by May 30 to qualify. Mail logs to:

SARTG Contest Manager
Bo Ohlsson, SM4CMG
Skulsta 1258
S-710 41 Fellingsbro
SWEDEN

COMMENTS: This popular contest has 3 separate operating periods, Each 8 hours long, and separated by two 8 hour rest periods. The Concept is quite unique and there can be no excuse of fatigue from the more senior ops. Band mults produce activity that will be spread over all the bands.
Activity is usually high for this contest from all over the globe. Single ops can also enter as a single band entry, with the band of their own choosing.
The exchange (RST + QSO serial number) means that you can keep track of your competition by comparing your number with his. If he suddenly appears with 10 more QSOs than you, it means you were a) goofing off, b) playing around on the wrong band, or c) stuck in a pileup and wouldn't give up.
Note that the first QSO with VK, VE, JA and W counts as a multiplier on each band. Also, each call district in VK, VE, JA and W will count as a multiplier. Separate logsheets are required for each band.

SEPTEMBER

CQ World-Wide RTTY DX Contest

I. **ANNOUNCING**: The eight annual CQ WW RTTY DX Contest

II. **OBJECTIVE**: For amateurs around the world to contact other amateurs in as many CQ Zones and countries as possible using the digital modes.

III. **CONTEST PERIOD**: Last full weekend in September. Saturday 00.00 to Sunday 24.00Z.

NOTE: The total contest period is 48 hours. All stations and operator classes may operate the entire 48-hour period; there are no required off time periods for any entries.

IV. **OPERATOR CLASSES**: There is a High Power category (greater than 150 watts) and a Low Power category (less than 150 watts). Only Single Operator All Band and Multi-Op Single Transmitter entries are eligible to enter the High or Low Power category. Enter one or the other, and note on your log. Single Band entries, Single Operator Assisted, and Multi-Multi entries are not eligible to enter the High or Low Power category.

1. Single Operator, All Band and Single Band. One person performs all operating and logging functions. Use of spotting nets, DX Alert Packet systems, telephone, etc., is not permitted.

2. Single Operator Assisted, All Band only. One person performs all operating and logging functions. However, the use of DX spotting nets or any other form of DX alerting assistance is allowed. The operator can change bands at any time. Single operator stations are allowed only one transmitted signal at any given time.

3. Multi-Operator, Single Transmitter. All band entry only. More than one person operates, logs, checks for duplicates, use of a spotting net, etc.

(a) Only one (1) transmitter and one (1) band permitted during the same time period (defined as ten [10] minutes). Once the station has begun operation on a given band, it must stay on that band for 10 minutes; listening time counts as operating time.

Exception: One - and only one - other band may be used during the same time period if - and only if - the station worked is a new multiplier. Logs found in violation of the 10 minute rule

will automatically be reclassified as multi-multi to reflect their actual status.

4. Multi-Operator, Multi-Transmitter. All band entry only. No limit to the number of transmitters, but only one (1) signal per band permitted.

(a) All transmitters must be located within a 500 meter diameter or within the property limits of the station licensee's address, whichever is greater. The antennas must physically be connected by wires to the transmitter.

V. **ENTRY CATEGORIES**: Single Operators may enter as (a) All Band High Power or Low Power; (b) Single Band; or (c) Single Operator Assisted All Band.

Multi-Operators may enter as (a) Multi-Op Single Transmitter, High Power or Low Power, All Band; or (b) Multi-Op Multi Transmitter, All Band.

VI. **MODES**: Contacts may be made using Baudot, ASCII, AMTOR (FEC & ARQ), Packet. (Unattended operation or contacts through gateways or digipeaters are not permitted.)

VII. **BANDS**: 80, 40, 20, 15, and 10 meters.

VIII. **VALID CONTACTS**: A given station may be contacted only once per band regardless of the digital mode employed. Additional contacts are allowed with the same station on each of the other bands as well.

IX. **EXCHANGE**: Stations within the 48 continental US and the 13 Canadian areas must transmit RST, State or VE area, and CQ Zone number. All other stations must transmit RST and CQ Zone number.

X. **COUNTRIES:** The ARRL and WAE country lists will be used. Note: The USA and Canada count as country multipliers. Example: The first US State and Canadian area you work not only count as a multiplier for the state or area, but also count as a country multiplier for each band.

XI. **QSO POINTS**: One QSO point for contacts within your own country. Two QSO points for contacts outside your own country but within your own continent. Three QSO points for contacts outside your own continent.

XII. **MULTIPLIER POINTS**: One multiplier point for each US state (48) and each Canadian area (13) on each band. One multiplier point for each DX country in the ARRL and/or WAE lists on each band. Note: KL7 and KH6 are country multipliers only and not state multipliers. One multiplier point for each CQ Zone worked on each band. Maximum of 40 zones per band. Note: Canadian areas are VO1, VO2, VE1 NB, VE1 NS, VE1 PEI, VE2, VE3, VE4, VE5, VE6, VE7, VE8 NWT, and VY Yukon.

XIII. **FINAL SCORE**: Total QSO points times the total multipliers equals the total claimed score.

XIV. **CONTEST ENTRIES** AND LOGGING INSTRUCTIONS: CQ WW RTTY DX logs and forms should be used to facilitate scoring and checking. Please do not roll the US States and Canadian Provinces together on the Summary Sheet as Country Multipliers; break them out separately.

All logs must show:
1. Times in UTC.
2. All sent and received exchanges are to be logged (call-sign,RST, Zone, country, State/VE, points claimed).
3. Indicate State/VE area, Zone, and Country Multiplier only the first time they are worked on each band.
4. Use a separate log sheet for each band.
5. A check list of duplicate contacts for each band (dupe sheet).
6. A multiplier check sheet for each band.
7. An overall summary sheet showing total QSOs, Points, Zones, Countries and States/VE areas worked.
8. Each entry must be accompanied by a signed declaration that all contest rules and regulations for amateur radio in the country of operation have been observed.

Contest forms are available from CQ magazine and the Contest Director. Please include a large SASE with two units of US first class postage or IRCs.

XV. **DISQUALIFICATIONS**: Operating in an unsportsmanlike manner, manipulating scores or times to achieve a score advantage, or failure to omit duplicates contacts which would reduce the overall score more than 2% are grounds for disqualification. The use of non-amateur means such as telephone, telegrams, etc., to elicit contacts or multipliers during the contest is unsportsmanlike, and the entry is subject to disqualification. Actions and decisions of the Contest Committee are official and final.

XVI. **AWARDS**: Plaques will be awarded to the first-place finishers in each of the operator classes. Certificates will be awarded to second and third places. Certificates will be awarded to the first-place finishers in each DXCC country. To be eligible for awards, a Single Operator must operate a minimum of 12 hours, and a Multi-Operator entry must operate a minimum of 18 hours.

XVII. **DEADLINE**: All entries must be postmarked no later than December 1st.

An extension may be given if requested. Logs should be mailed to:

Roy Gould, KT1N
CQ WW RTTY DX Contest Director
P.O.Box DX
Stow
Ma 01775
USA

COMMENTS: This is the most popular world-wide RTTY DX contest. It's also the most challenging. With the whole world participating, the CQ Zone multipliers, band multipliers, States and VE areas counting as different countries, there's a lot to keep track of. This contest has low power/high power classes, which brings lots of activity. With 48 states, 13 VE areas to go after on EACH band, look for lots of activity on 80 and 40M for all those easy multipliers. During September, 20M is still the best, but 15 and 10M will be quite unreliable.

OCTOBER

SECOND INTERNET RTTY SPRINT CONTEST

Contest period: 01:00:00Z to 03:00:00Z on
(October 9th, 1997).
This is Wednesday evening in the USA.

Bands: 40 and 20 meters only (this is a real radio contest, no internet). Suggested frequencies are 7070-7100 and 14070-14095.

Max power output: 150 watts at transmitter output connector.

Exchange: Name and state or province or DXCC country (if outside W/VE).

Call: CQ INT

*****The standard sprint QSY rule must be followed. This means that if you solicit a QSO (i.e.: with CQ or QRZ), after completing the QSO, you must QSY at least 1 kHz before calling another station, or 5 kHz before soliciting another QSO.*****

Both callsigns must be sent during the exchange. Only one signal at a time please and all QSOs are to take place on RTTY. All information submitted must have been decoded during the contest. The use of post contest detection or verification techniques or systems is not allowed. Also, do not make round robin type QSOs. A round robin QSO is one where you should QSY, but instead hang around to work the station who is QSOing the station you gave the frequency to. You may work the same station multiple times provided they are Separated by at least 3 other

QSOs in both logs (regardless of band). For example, if W2UP works AB5KD, KD must work at least 3 other stations before he can work UP again. UP must also work 3 stations before working KD again. Changing bands does not eliminate the three QSO requirement. The three QSOs must not be dupes themselves.

You must not work the same station or stations using any kind of schedule or system. It is the intent of the dupe rule to make sure we don't run out of stations to work. It is NOT the intent of this rule for you to change how you would operate the contest if dupes were not allowed. If, in the log checkers opinion, you have not lived up to the intent of this rule, your log will be disqualified!!

Total score is the number of contacts you make. Any QSO found to be defective in anyway will be removed from BOTH logs (yes, if someone miscopies your exchange, you won't get credit for the QSO).

Logs must be sent in ASCII format via Internet to <barry@w2up.wells.com> within 72 hours of the end of the contest. Figuring out how to send in your log on the Internet is PART OF THE CONTEST. If you need help, we will try to assist the best we can. Using the NAQP contest format in RTTY by WF1B is suggested.

Logs must show the band, time, station worked, name received and QTH received for each QSO. Also, please tell me the name you start the contest with.

Results will be published on WF1B-RTTY within 2 weeks of the contest. Decisions of the judging committee are final and arbitrary.

Good luck, tell a friend and HAVE FUN!!

Barry W2UP, e-mail: barry@w2up.wells.com

JARTS WW RTTY Contest

Sponsored by JARTS (President: JA1ACB)
Supported by Japanese CQ Magazine (Ref: JH1BIH)
Occurs on third full weekend in October
Sat 18th & 19th, 1997

CONTEST PERIOD: Starts at 0000 UTC Saturday, and ends at 2400 UTC Sunday. No OFF periods required.

BANDS: 80, 40, 20, 15, and 10M

JA RTTY BAND SEGMENTS: 80M 3.520 — 3.525 MHz <— note!
40M 7.025 — 7.040 MHz <— note!
20M 14.070 — 14.112 MHz
15M 21.070 — 21.125 MHz
10M 28.070 — 28.150 MHz

MODE: Baudot (RTTY) only.

OPERATOR CLASSES:
A) Single Operator, All Band
B) Multi-Operator," All Band, (Multi TX Permitted)"
C) SWL, "All band"

MESSAGE EXCHANGE: RST + Operator's age. (00 acceptable for YL and XYL) Multi-op stations must send 99 as operator age.

QSO POINTS: Two (2) points for QSO within your own continent. Three (3) points for QSO outside your own continent.

MULTIPLIER: A: Each DXCC country Except JA/W/VE/VK Mainland B: Each call area in JA/W/VE/VK *Each multiplier is counted only once per band. *You can count your own call area as a multiplier.

FINAL SCORE: Total of QSO points x total of multipliers. (Same for SWL's)

AWARDS: First place plaques to top winner in all three classes. First through fifth will receive certificates, all three classes in each continent, if number of QSOs is reasonable. Special award for 15th from last in all three classes.

LOGS and SUMMARY: The logs to contain: BAND, DATE/TIME UTC, CALLSIGN, RST/AGE sent and received, MULTIPLIERS, and POINTS claimed. Any entry making more than 200 QSOs must submit duplicate checksheet. Use separate logsheets for each band, and include a Summary Sheet showing the scoring, class, your call, name and address. Multi-Op stations please include names and callsigns of all ops. Logsheets and Summary sheets are available from Contest Manager, JH1BIH.

DEADLINE: Logs must be received by December 31. Mail to:

JARTS Contest Manager, Hiroshi Aihara, JH1BIH
1-29 Honcho, 4 Shiki Saitama 353, JAPAN

COMMENTS: The JARTS WW RTTY Contest has grown to be one of the most popular and is really a lot of fun. From the clever "age exchange" we find just how young we all are, and who the bashful YL ops are, too! Band multipliers will open up ALL the bands. Note the JA RTTY segments on 80 and 40M. If you don't intend to make a huge score, consider going for the award for 15th from last place in your class. It will require very precise judgement, and you have to send in your logs to JARTS Contest Manager, JH1BIH. Only he can decide. This is probably the most difficult award one can ever achieve in Contesting!

NOVEMBER

WAE RTTY CONTEST

Second full weekend in November
Sponsored by Deutscher ARC (Germany)

CONTEST PERIOD: 0000 UTC Saturday to 2400 UTC Sunday. (48 hours)

REST PERIODS: Only 36 hours of operation are permitted for Single op stations. The 12 hours of non-operation may be taken in one but not more than 3 periods at any time during the contest, and must be clearly noted in the log.

BANDS: 80, 40, 20, 15, and 10M. (five bands) Minimum operating time on the band is 15 minutes. A quick band change is allowed only for a QSO with new multiplier.
Note: QTC traffic is not permitted with that new Multplier.

MODES: Baudot (RTTY) only.

OPERATOR CLASSES: Note: DX Cluster support is allowed for all classifications.
a) Single op, all bands
b) Multi-op, Single transmitter (only one signal on any band at the same time is permitted)
c) Multi-op multi transmitter (no limit to transmitters, but only one signal per band permitted).
d) SWL

MESSAGE EXCHANGE: RST + QSO serial number, starting with 001. (Multi-multi stations must keep serial number by band). A station may be worked only once per band.
Note: For RTTY , there are NO continental limitations. Everybody works everybody.

QSO POINTS: count 1 point for each QSO and 1 point for each QTC (see below).

MULTIPLIERS: Each DXCC/WAE country counts as a multiplier. Multipliers count only once per band.

WAE country list: C3 CT1 CU DL EA EA6 EI ES ER EU F G GD GI GJ GM GM (Shetland) GU GW HA HB HB0 HV I IS IT JW(Bear) JW (Spitsbergen) JX LA LX LY LZ OE OH OH0 OJ0 OK OM ON OY OZ PA R1/FJL-R1/MVI RA RA2 S5 SM SP SV SV5(Rhodes) SV9(Crete) SV (Mt Athos) SV(Athos) T7 T9 TA1 TF TK UR YL YO YU Z3 ZA ZB2 1A0 3A 4U1(Geneva) U1(Vienna) 9A 9H

MULTIPLIER BONUS: Each mult on 80M counts as 4 mults. Each mult on 40M counts as 3 mults. Each mult on 20/15/10M counts as 2 mults.

QTC POINTS: Count 1 point for each QTC reported to any station NOT ON YOUR OWN CONTINENT. Each station may both

send and receive QTCs, but the sum of QTCs exchanged between two stations (sent plus received) must not exceed 10.

Each QTC (message) will contain: Time, callsign, and QSO number. Example: "QTC:1307/AA5AU/131" means that You worked AA5AU at 1307 UTC and received his serial number 131.

A QSO may be reported only once and not back to the originating station. (You cannot report a QSO with AA5AU back to AA5AU for credit.) The same station can be worked several times to complete the quota of 10, but only the original contact has QSO point value.

A uniform list of QTCs sent must be kept. QTC 3/7 indicates that this is the 3rd series and 7 QTCs are now being sent. Record all received QTCs on a separate sheet with a clear indication of the sender.

If more than 100 QTCs are claimed, a QTC checklist must show that the maximum quota of 10 QTCs per station has not been exceeded.

FINAL SCORE: Multiply total number of QSOs + QTCs by total of multipliers.

AWARDS: Certificates will be awarded to highest scorer of the different classifications in each country (a reasonable score provided). Continental leaders will receive a plaque. Each participant with at least half of the score of the continental leader will also receive a certificate.

Logs and Summary: Use separate logsheets for each band. Indicate clearly all band changes. Duplicate contacts must be clearly marked in the log. If more than 100 stations have been worked on a band, a separate dupe sheet is required.

NOTE: Logs violating these rules can be regarded as checklogs.

LOG DEADLINE: Log entries must be received by December 15. Mail to:

WAEDC CONTEST COMMITTEE
P.O. BOX 1126
D-74370 SERSHEIM
FEDERAL REPUBLIC OF GERMANY

E-Mail Address is for WAE Logs is:
<< 100712.2226@compuserve.com >>

COMMENTS by Rich,N6GG

This is the RTTY version of the CW/SSB WAE Contest. While the QTC rules seem complex, one doesn't have to get into the QTC portion of it to enjoy the camaraderie. Besides, there may be a new country to work, or a DXpedition pileup challenge to undertake. A maximum of 36 hours of operation is allowed. Check out those low band bonuses - especially if you have a good shot to Europe.

DECEMBER

Troy Amateur Radio Association, Inc

5th Annual - TARA RTTY SPRINT
* Please note NEW starting time! *

1.) **Object**: Contact and exchange QSO information with as many stations as possible using RTTY only. Any station may work any other station.

2.) **Contest Period**: December 13, 1997 From: 18:00 UTC until 02:00 UTC Dec 14, 1997.

3.) **Modes**: RTTY only!

4.) **Bands**: All amateur bands 3.5-30 MHz (excluding 10,18 and 24MHz).

5.) **Entry Categories**:

(A) Single Operator, multiband - One person performs all operating and logging functions. Use of spotting nets (operating arrangements involving assistance through DX-alerting nets, etc.) is **not** permitted. Single Operator stations are allowed only one transmitted signal at any given time.

1) less than 150 W output
2) 150 W output or more

(B) Multi operator, single transmitter only- More than one person operates, checks for duplicates, keeps the log, etc. Once the station has begun operation on a given band, it must remain on that band for at least 10 minutes; listening time counts as operating time. Multioperator stations are allowed only one transmitted signal at any given time.

6.) **Exchange**:
US: signal report and state.
Canada: Signal report and province.
DX: Signal report and serial number starting with 001. Both stations must receive and acknowledge the complete exchange for the contact to count.

7.) **Scoring**:
(A) QSO Points: Count one point for each completed QSO (anyone can work anyone). A station may be worked once per band for QSO credit (but not for additional multipliers).
(B) Multiplier: Count only once (not once per band), each US state (except KH6 and KL7), each VE province (plus VE8 and VY1) and each DXCC country. KH6 and KL7 count only as separate DXCC countries. The US and Canada do not count as DXCC countries.

8.) **Miscellaneous**:
(A) The use of non-Amateur Radio means of communication (e.g., telephone) for the purpose of soliciting a contact (or contacts) during the contest period is inconsistent with the spirit and intent of this announcement.

Reporting
(A) Entries must be postmarked no later than 41 days after the end of the contest, January 25, 1997. Any entry making more than 200 total QSOs must submit duplicate check sheets (an alphabetical listing of stations worked). No late entries can be accepted. Use ARRL RTTY Roundup forms, a reasonable facsimile or submit entry on diskette or electronically.

Send entries to:

William J. Eddy NY2U
2404 - 22nd Street,
Troy, New York 12180-1901 U.S.A.

or Via e-mail: MRBILL1953@AOL.COM

Or try our "NEW" TARA RTTY WEB PAGE:
http://generators.com/tara/rtty.html

(B) You may submit your contest entry on diskette in lieu of paper logs. The floppy diskette must be IBM-compatible, MS-DOS formatted, 3-1/2 or 5-1/4 inch. The log information must be in an ASCII file, following the ARRL Suggested Standard File Format, and contain all log exchange information (band, mode, date, on and off times, time in UTC, call sign of station worked, exchanged sent, exchange received, multipliers [marked the first time worked] and QSO points). One entry per diskette. An official summary sheet or reasonable facsimile with a signed contest participation disclaimer is required with all entries.

10.) **Awards**:
Distinctive certificates will be awarded to: Top high-power and low power single-operator and multioperator scorers in each ARRL/Canadian Section; Top high-power and low-power single operator and multioperator scorers in each DXCC country (other than W/VE0; each Novice and Technician entrant; each entrant making at least 50 QSOs.

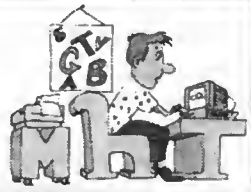
11.) **Conditions of Entry:**
Each entrant agrees to be bound by the provisions as well as the intent of this anouncement and the regulations of his/her licensing authority.

12.) **Disqualifications**:
For excess duplicate contacts and call sign or exchange errors.

The Last Word

from the Editor

Jim Mortensen, N2HOS • PO Box 490 • Indian Rocks Beach, FL 33785.
E-mail: <jem@n2hos.com> • Tel: 914.276.1058 • fax: 914.276.1059.



This is my final act. I informed the IDRA board of directors in October that I would leave this post after the January issue was put to bed. Ever since then I have mulled this particular column—and about how best to explain my retirement. I haven't made much progress, though I have reviewed the normal options. I could, for example, say nothing and fade away in the middle of the night. Not bad and a quite common approach, but it serves no purpose. I could cook up a good story and place it on the Internet. Within minutes everyone in the would know, and believe, whether the story be true or false!

I could leave in a huff and complain forever, then tell flaming stories about some of the things that have happened during the process of creating the last 36 issues. I could, but won't write a book on that subject—about people who promise to do something then disappear, never to surface again; about those who accept positions of honor, then shun all responsibility and remain mute while avoiding any manner of contribution, speaking only when it is time to complain about some trivial subject; or about those faithful members who fail to renew their membership, then turn about and ask that the Digital Journal's content be available free on the Internet, and expect a positive response! Other approaches abound, but the point is obvious. Three years of this is enough for my system to create quarts of acid, to lose many nights of sleep, to cry out in frustration . . . but I found no less angst through the act of complaining. Thus I devote no more than this one paragraph to this facet of my departure. And will not visit the subject again.

No, I think the only viable option is to write a normal column in the space I have occupied for the past several years. And remind myself that the good far outweighs the bad, the irritating, the frustrating. Fine things. Friends, for example. Friends everywhere! E-mail friends, Dayton friends, editorial friends, software and computer friends, all kinds of new and interesting acquaintances. Yes, despite the total lack of any form of financial reward, this editor earned a wonderful form of compensation immune from tax, inflation, robbery or confiscation. This 'currency' is durable, permanent, heartwarming and not-to-be-forgotten . . . and I promise to invest it wisely in the years ahead.

Learning, for example. Editing is a task filled with dread. Why? Simply because, in order to edit well, the editor must have or acquire sufficient knowledge to evaluate the written word, the diagram, the illustration, the screen shot. Consider the range of subjects covered in the last three dozen issues and imagine how I have scrambled around to learn a bit about subjects well beyond my range of knowledge. What a challenge it has been to keep up with this crowd! I have become semi-expert or at least quite knowledgeable about fundamental subjects that were never on my agenda. Networking? Got it down to a science. Graphics? Try me. Digital modes? I use them all. Contesting? Egad, I can even use WF1B's RTTY software along with the best of them. Spread spectrum? Well, maybe. Windows? NT? SCSI? Internet? Website development? File transfer? Yes, a thousand times yes. No, I don't write software and never will for I am a USER, but my appreciation and understanding of the technology we have at our fingertips grew immeasurably over the past three years, often because I was forced to learn. And I enjoyed it am deeply thankful for those who have either tutored or dared me . . . or both.

Patience, too. Never in my 71-plus years have I been known as a particularly patient man. But I discovered the eternal secret about getting wonderful works out of those who have little or no time to produce them. It's name is patience, flexibility, a willingness to tolerate those last minute (or even past the last minute) submissions. And trust, knowing that the writer at the other end of the Internet link will deliver the goods even though the deadline is stretched to the limit. I discovered something. Quality is well worth the wait and its arrival proves that deadlines are inane rules made to be stretched and broken. Of course, some writers failed to deliver and empty pages, at deadline, mocked me. But the majority delivered more than a distant editor could either reasonably expect or desire and, even now as I thumb through some of the past issues, I am dazzled by the works of busy men and women who call themselves amateurs. Professionals all, they deserve far, far more thanks than they ever received, from you or me.

Finally, persistence. No other word describes the effort required to write well over 100,000 words, the length of a typical novel, and to edit another million! That's not all, either. There must have been far more than a thousand phone calls (some at 0400 local), E-mails, faxes and letters. Fortunately, no logs were kept. Even if there had been a log, these numbers wouldn't make it into the record books, but the effort abused my keyboard, mouse and monitor and took a major piece out of me as well.

The first time I retired, way back in 1981, I did so because I was spending more time away than at home and more time in the air than on the ground. On one trip in 1980 to Tokyo, Hong Kong, Shanghai, Singapore and Sydney, I was actually in the airplane over 60 percent of the ten days required to make the rounds. About the tenth trip of its kind that year, I blew the whistle. Such a schedule, I thought then and even more strongly now, put a preposterous demand on my body, mind and soul. And I checked out and never regretted the action, not for even a moment.

This retirement is but a distant cousin of the earlier scenario. Yet, I am older and wise enough to realize that I simply cannot continue to carry this load. Others must now write the monthly columns, recruit others to write other monthly columns, fill the pages with wit and wisdom, meet the deadlines, answer the phone, write the E-mail, manage the website—and constantly strive to keep this wonderful magazine alive and well. I have no doubt my successors will quickly demonstrate how much better the Digital Journal can look and feel and teach and challenge and report. And I will be there with them, albeit on the sidelines, applauding as each issue comes off the press.

It is impossible to leave the subject without thanking those writers and experts who have made these years such a memorable experience. First, to our dear departed friend John TG9VT who introduced me to the Journal and first taught me what the it was all about. To Jules W2JGR, Jay WS7I, Hal WA7EGA, Dale W6IWO, Dick K0VKH, Rich N6GG and Eddie W6/G0AZT who kept the flame alive. And, in more recent times, the bunch that turns out today's best radio magazine—Neal ON9CNC, Don AA5AU, Ron AB5KD/K5DJ, Dick N1RCT, Jim KA6A, Crawford WA3ZKZ, Peter G3IRM, Dave KI6QE, Paul W4ZB, Bob W1VXV, Jan K4QD and all the others who contributed the bits

Right On Target

CLASSIFIED AD DEPARTMENT

First 30 words $7.50, additional words 10 cents each. Cash with Ad. Deadline for ads is the 5th of the prior month of publication. (Example - Ad arrives by the 5th of December, will appear in the December issue.)

NEWS - NEWS - NEWS - NEWS . . . Amateur Radio's Newspaper "WORLDRADIO". One year subscription (12 issues) $14.00 for U.S., non U.S. $24.00,2 Year subscription (24 issues) $27.00 U.S., non U.S. $47.00, 3 year subscription (36 issues) $39.00 U.S. non U.S. $69.00, Lifetime subscription $140.00 U.S. non U.S. $240.00. Contact: WORLDRADIO, P.O. BOX 189490, Sacramento, CA 95818

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BACK ISSUES - All Back Issues of the Following: RTTY Digital Journal - ATVQ - A5 SPEC-COM & ATV TODAY. Write for list & prices - SASE - ESF Copy Service, 4011 Clearview Dr., Cedar Falls, IA. 50613 (319) 266-7040

RTTY CONTEST SOFTWARE: This is the program used by WINNERS. RTTY by WF1B is the premier teletype contest software. Supports CQWW, ARRL, SARTG, BARTG contests. New DXpedition mode recently used by AHIA. Supports HAL PCI-3000, PK-232, KAM, MFJ-1278, UTU, AMT-1, and Standard TUs. Online features: Automatic duping, Automatic multiplier identification, Automatic scoring, Mouse support, Break-in buffer, Buffer tags for dynamic custom transmissions, File transfer. Post Contest features: Complete paperwork generation, QSL labels, Statistics. Call (401) 823-RTTY for fact sheet. IBM-PC, $49.95 delivered.. Specify disk size. Wyvern Technology, 35 Colvintown Road, Coventry, RI 02816-8509.

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and pieces that filled the nooks and crannies of the past three dozen issues. I have been on the receiving end of their contributions all this time and, in all probability never sufficiently thanked them for their wondrous gifts. I thank them now and wish all to know they did it, they created the marvelous package you received each month over the past three years. I can only applaud and say how proud I am to have been in their company.

Nor can I leave without a special note of thanks to Tom WA8DXD. Working with Tom through 36 deadlines has been, all told, a wonderful experience. Despite my workload and unreasonable demands, despite the heavy workload required by his firm, he somehow found the weekend hours necessary to design and assemble each issue of the Journal in Quark Express, fax it all to me, get it back and make corrections, get it to the printer, print out the labels from the updated data base, and then sort and assemble the 70 different labeled bags of mail required by the Post Office. And he has gone through this routine month after month without a hitch, with minimum delay, with virtually no misunderstandings, no noise or fireworks. He made it seem so easy. Tom earned a lot of respect here, earned it the old-fashioned way, by deserving it. I will miss working with him, too.

This job at the Journal came into my life at precisely the right time. Three years ago I was in desperate need of something to keep me occupied and challenged and at home. My wife's medical problems were at their worst and, while busily engaged in her care, I needed an outlet, something more demanding than the monthly column I had been doing for the DJ for some years. Perhaps I received more than I bargained for. This 'outlet' arrived in a small package, a misleading signal if I have ever seen one. Surely it wouldn't be difficult, I thought. This little package, however, kept my nose to the grindstone from the first day! But, as one who thought seriously about buying a county weekly newspaper back in 1946 (fortunately, Gen talked me out of that momentary dream), the work was, after the rocky early days, deeply satisfying. I treasure the remaining memories, having deleted the miserable ones, and now thank you for allowing me to enter your mailbox for so long a time.

What now? More time, I hope. Time to pick the fruit, play with the radio, time to help the new propagation cycle return . . . and yes, time to write a column from time to time (whenever asked), perhaps even a book at some point. In the process of adjusting to a new lifestyle, I trust I can maintain those new friendships, sharpen the ability to keep learning from them, keep on enjoying the new found knowledge, and time to keep up an active digital website. That's all I ask.

73 de Jim N2HOS sk

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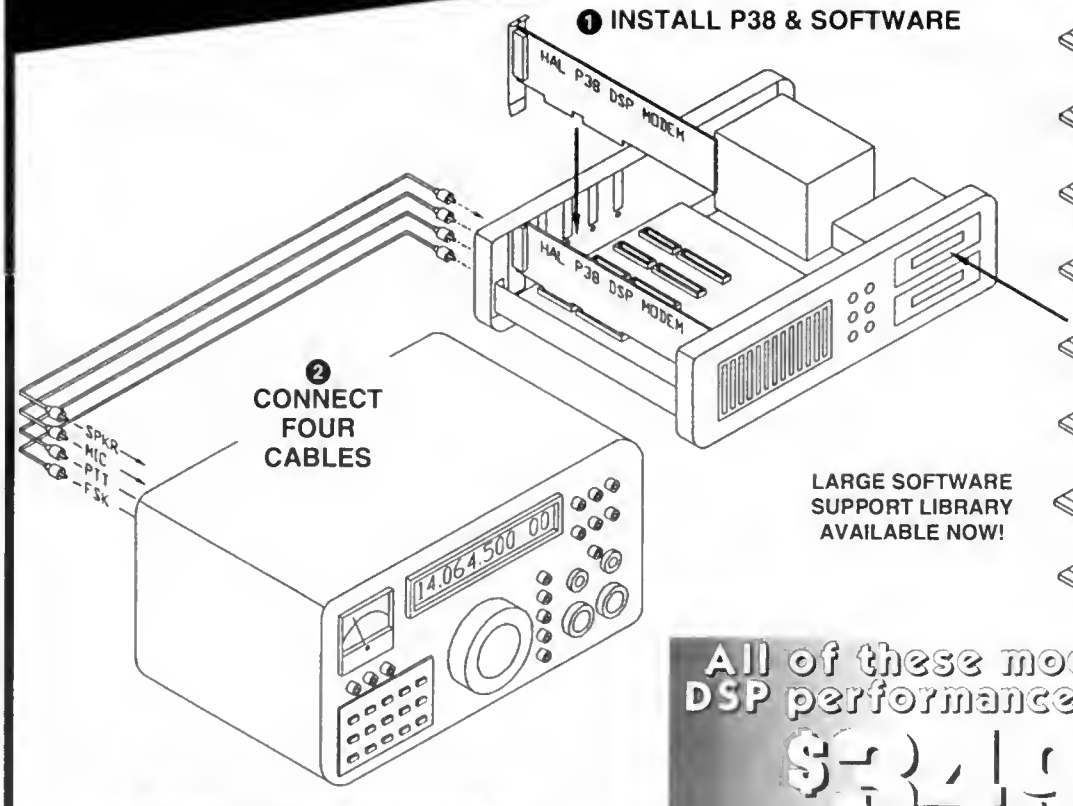

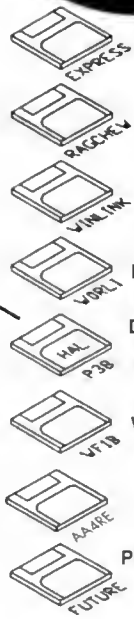

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